

Utah

Greater Sage-Grouse

Proposed Land Use Plan Amendment and Final Environmental Impact Statement

Volume IV: Appendices A - H

US Department of the Interior
Bureau of Land Management

US Department of Agriculture
Forest Service

June 2015



The Bureau of Land Management's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

The mission of the USDA Forest Service is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations.

DOI-BLM-UT-9100-2013-0002-EIS

Cover Photo: Steve Ting

UTAH GREATER SAGE-GROUSE PROPOSED LAND USE PLAN AMENDMENT AND FINAL ENVIRONMENTAL IMPACT STATEMENT

CONTENTS

VOLUME I

Abstract

Dear Reader Letter
Executive Summary

Chapter 1. Introduction

Chapter 2. Alternatives

VOLUME II

Chapter 3. Affected Environment

Chapter 4. Environmental Consequences

VOLUME III

Chapter 4. Environmental Consequences (*continued*)

Chapter 5. Cumulative Impacts

Chapter 6. Consultation and Coordination

References

Glossary

Index

VOLUME IV (*Appendices*)

A Maps

B Adaptive Management

C Greater Sage-Grouse Monitoring Framework

D Mitigation Strategy Utah Greater Sage-Grouse LUPA

E Greater Sage-Grouse Disturbance Cap Guidance

F Applying Lek Buffer Distances

G Required Design Features

H Stipulations Associated with Fluid Mineral Leasing

VOLUME V (*Appendices not printed; available on the project website:*

http://www.blm.gov/ut/st/en/prog/planning/SG_RMP_rev.html)

- I Detailed No Action Alternative**
- J Methodology for Calculating a Substantial Livestock Grazing Reduction under Alternative C2**
- K Fire and Invasives Assessment Tool**
- L Baseline Disturbance Inventory**
- M Predation of Greater Sage-Grouse in the Utah Sub-Regional Planning Area**
- N Greater Sage-Grouse Habitat Baseline and Habitat Update Protocol**
- O Biological Assessment for the Utah Greater Sage-Grouse Land Use Plan Amendment and Final Environmental Impact Statement**
- P US Forest Service Biological Evaluation for the Land Use Plan Amendment and Final Environmental Impact Statement for the Conservation of Greater Sage-Grouse in Utah, including the Ashley, Fishlake, Manti-La Sal, Dixie, and Uinta-Wasatch-Cache National Forest Plans**
- Q Livestock Grazing Allotments in Greater Sage-Grouse Occupied Habitat**
- R Oil and Gas Reasonably Foreseeable Development Scenario for Greater Sage-Grouse Occupied Habitat in Utah Sub-Region**
- S BLM ACEC Evaluation and Forest Service Zoological Areas**
- T Detailed Employment and Earnings Data**
- U Non-Market Valuation Methods**
- V Great Basin Vegetation Modeling using Vegetation Dynamics Development Tool**
- W Economic Impact Analysis Methodology**
- X Response to Comments on the Draft Land Use Plan Amendment/Environmental Impact Statement**

Appendix A

Maps

APPENDIX A

MAPS

Chapter 1

- 1.1 Greater Sage-Grouse Habitat
- 1.2 Population Areas
- 1.3 Rapid Ecoregional Assessments in Utah Sub-region

Chapter 2

- 2.1 Greater Sage-Grouse Priority/General Habitat Management Areas–Alternative B
- 2.2 Greater Sage-Grouse Priority Habitat Management Areas–Alternative C
- 2.3 Greater Sage-Grouse Priority/General Habitat Management Areas–Alternative D
- 2.4 Greater Sage-Grouse Habitat within Sage-Grouse Management Areas–Alternative E1
- 2.5 Greater Sage-Grouse Core and Non-Core Areas in Wyoming–Alternative E2
- 2.6 Greater Sage-Grouse Priority/General Habitat Management Areas and Sagebrush Focal Areas–Proposed Plan
- 2.7 State of Utah Sage-Grouse Management Areas
- 2.8 ROW Avoidance and Exclusion Areas–Alternative A
- 2.9 ROW Avoidance and Exclusion Areas–Alternative B
- 2.10 ROW Avoidance and Exclusion Areas–Alternative C
- 2.11 Avoidance and Exclusion Areas for Above Ground Linear ROWs–Alternative D
- 2.12 Avoidance and Exclusion Areas for Surface and Underground ROWs–Alternative D
- 2.13 Avoidance and Exclusion Areas for Above Ground Site Types–Alternative D
- 2.14 ROW Avoidance and Exclusion Areas–Alternative E
- 2.15 ROW Avoidance and Exclusion Areas–Proposed Plan
- 2.16 Designated ROW Corridors–Alternative A
- 2.17 Designated ROW Corridors–Alternative B
- 2.18 Designated ROW Corridors–Alternative C
- 2.19 Designated ROW Corridors–Alternative D
- 2.20 Designated ROW Corridors–Proposed Plan
- 2.21 Land Tenure Adjustments–Alternative A
- 2.22 Land Tenure Adjustments–Alternative B
- 2.23 Land Tenure Adjustments–Alternative C
- 2.24 Land Tenure Adjustments–Alternative D
- 2.25 Land Tenure Adjustments–Proposed Plan
- 2.26 Locatable Mineral Withdrawals–Alternative A

- 2.27 Locatable Mineral Withdrawals–Alternative B
- 2.28 Locatable Mineral Withdrawals–Alternative C
- 2.29 Locatable Mineral Withdrawals–Proposed Plan
- 2.30 Avoidance and Exclusion Areas for Wind Energy–Alternative D
- 2.31 Avoidance and Exclusion Areas for Wind Energy–Proposed Plan
- 2.32 Avoidance and Exclusion Areas for Solar Energy–Proposed Plan
- 2.33 Non-Energy Solid Leasable Minerals–Alternative A
- 2.34 Non-Energy Solid Leasable Minerals–Alternative B
- 2.35 Non-Energy Solid Leasable Minerals–Alternative C
- 2.36 Non-Energy Solid Leasable Minerals–Alternative D
- 2.37 Non-Energy Solid Leasable Minerals–Alternative E
- 2.38 Non-Energy Solid Leasable Minerals–Proposed Plan
- 2.39 Coal Suitability–Alternative A
- 2.40 Coal Suitability–Alternative B
- 2.41 Coal Suitability–Alternative C
- 2.42 Saleable Mineral Materials–Alternative A
- 2.43 Saleable Mineral Materials–Alternative B
- 2.44 Saleable Mineral Materials–Alternative C
- 2.45 Saleable Mineral Materials–Alternative D
- 2.46 Saleable Mineral Materials–Alternative E
- 2.47 Saleable Mineral Materials–Proposed Plan
- 2.48 Fluid Minerals Leasing Categories–Alternative A
- 2.49 Fluid Minerals Leasing Categories–Alternative B
- 2.50 Fluid Minerals Leasing Categories–Alternative C
- 2.51 Fluid Minerals Leasing Categories–Alternative D
- 2.52 Fluid Minerals Leasing Categories–Alternative E
- 2.53 Fluid Minerals Leasing Categories–Proposed Plan
- 2.54 OHV Area Designations–Alternative A
- 2.55 OHV Area Designations–Alternative B
- 2.56 OHV Area Designations–Alternative C
- 2.57 OHV Area Designations–Alternative D
- 2.58 OHV Area Designations–Alternative E
- 2.59 OHV Area Designations–Proposed Plan
- 2.60 Potential ACECs and Zoological Areas–Alternative C

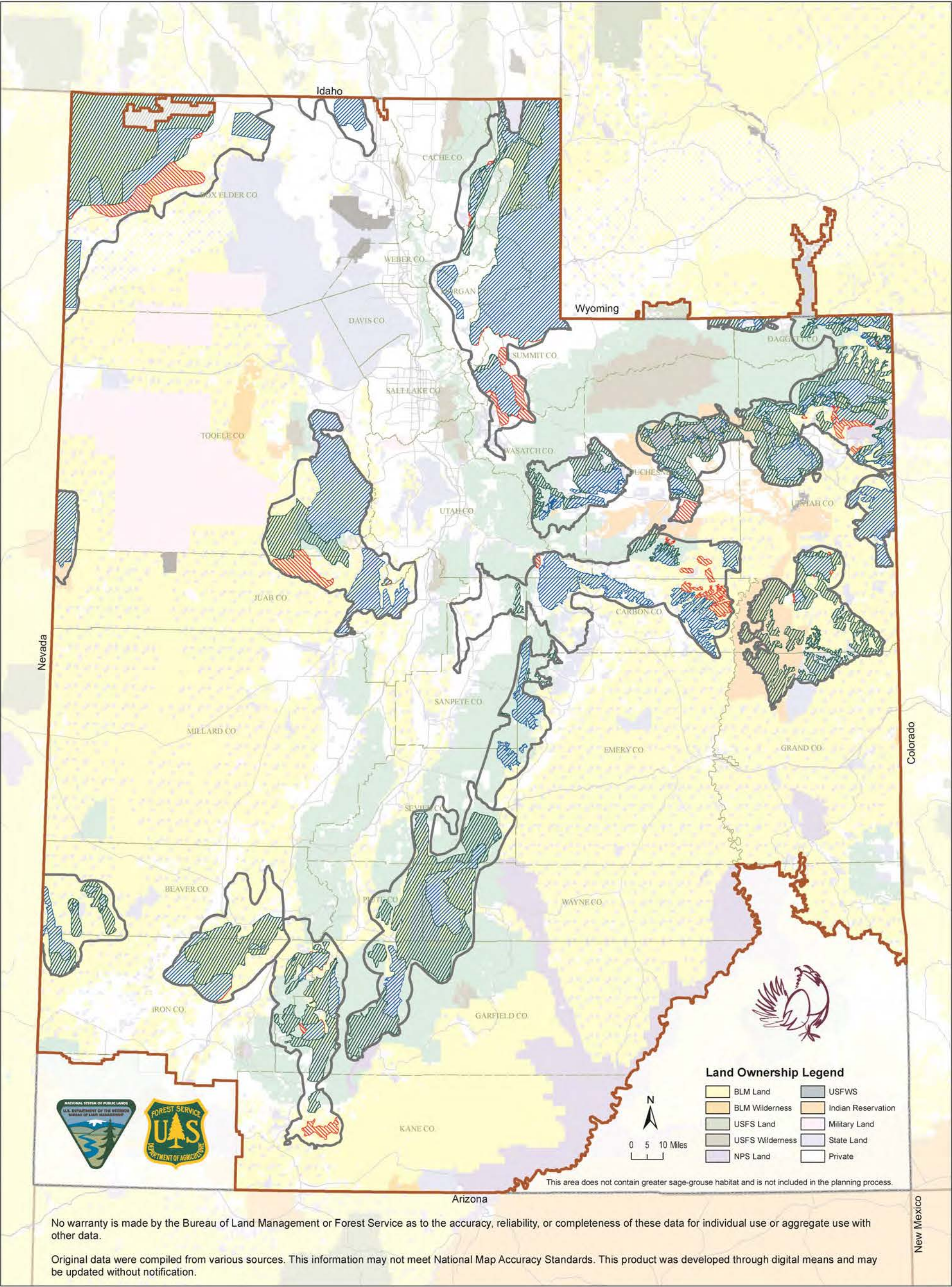
Chapter 3

- 3.3-1 Utah Breeding Bird Density
- 3.3-2 WAFWA Management Zones and Greater Sage-Grouse Breeding Bird Density
- 3.3-3 Current and Historic Greater Sage-Grouse Habitat
- 3.5-1 Climate Space Trends Intensity and Predicted Future Climate
- 3.5-2 Landscape Condition and Ecological Intactness
- 3.8-1 General Vegetation
- 3.8-2 Vegetation- Sagebrush Categories
- 3.9-1 Utah Prairie Dog Habitat
- 3.10-1 Rocky Mountain Elk Habitat
- 3.10-2 Mule Deer Habitat
- 3.10-3 Pronghorn Habitat
- 3.10-4 Rocky Mountain Bighorn Sheep, Bison, and Moose Habitat
- 3.11-1 Wild Horse and Burro Herd Management Areas
- 3.14-1 Wildland Fire Regime

- 3.14-2 Wildland Fire Condition Class
- 3.14-3 Wildland Fire History
- 3.15-1 Lands with Wilderness Characteristics and BLM Natural Areas
- 3.16-1 Livestock Grazing Allotments
- 3.17-1 Special Recreation Management Areas
- 3.17-2 Developed Recreation Sites
- 3.19-1 Transmission Lines and Pipelines
- 3.20-1 Wind Occurrence Potential
- 3.20-2 Wind Energy Rights-of-Way
- 3.20-3 Geothermal Occurrence and Development Potential
- 3.21-1 Federal Mineral Interests
- 3.21-2 Oil and Gas Occurrence Potential
- 3.21-3 Oil and Gas Leases
- 3.21-4 Oil and Gas Wells
- 3.21-5 Gilsonite and Phosphate Occurrence and Development Potential
- 3.21-6 Sodium and Potash Occurrence Potential
- 3.21-7 Coal Occurrence and Development Potential
- 3.21-8 Locatable Mineral Occurrence Potential
- 3.21-9 Mining Claim Density
- 3.21-10 Saleable Mineral Materials Occurrence Potential
- 3.22-1 Designated Areas of Critical Environmental Concern and Research Natural Areas
- 3.22-2 Wilderness and Wilderness Study Areas

This page intentionally left blank.

Greater Sage-Grouse Habitat

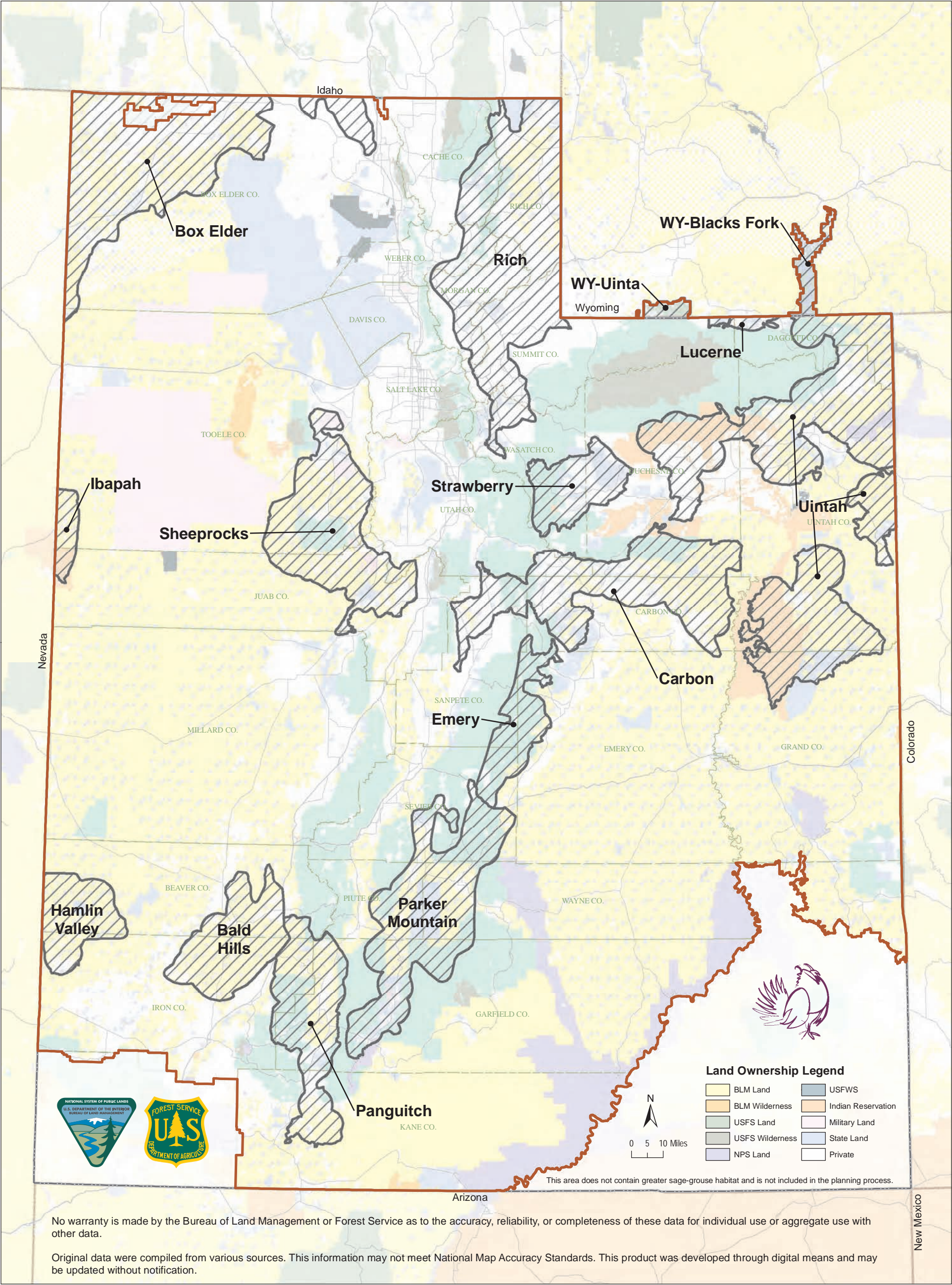


Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

- Brooding Habitat
- Winter Habitat
- Winter and Brooding Habitat

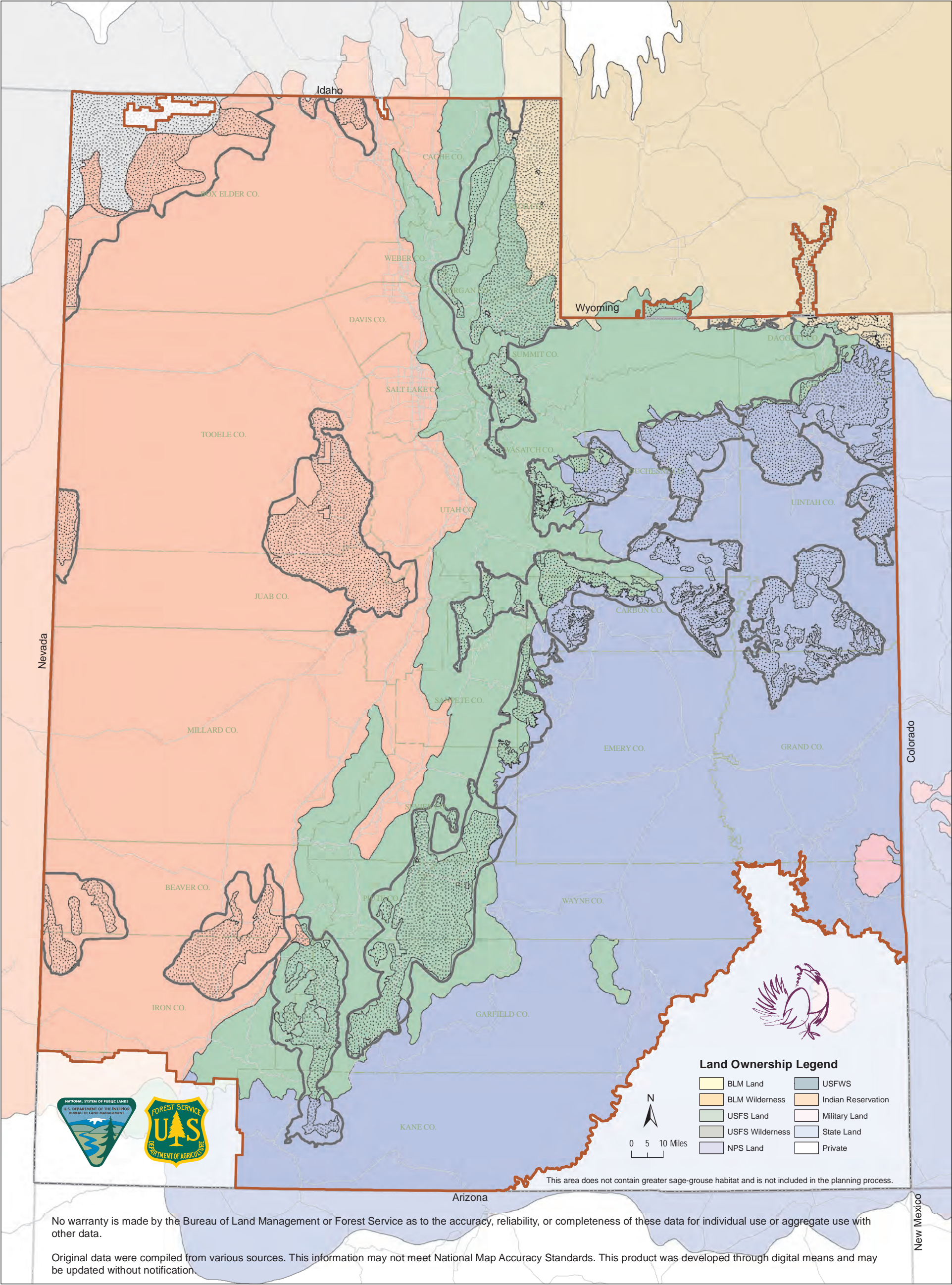
Population Areas



Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas

Rapid Ecoregional Assessments in Utah Sub-Region



Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area

Population Areas

Occupied Habitat
- Central Basin and Range

Colorado Plateaus

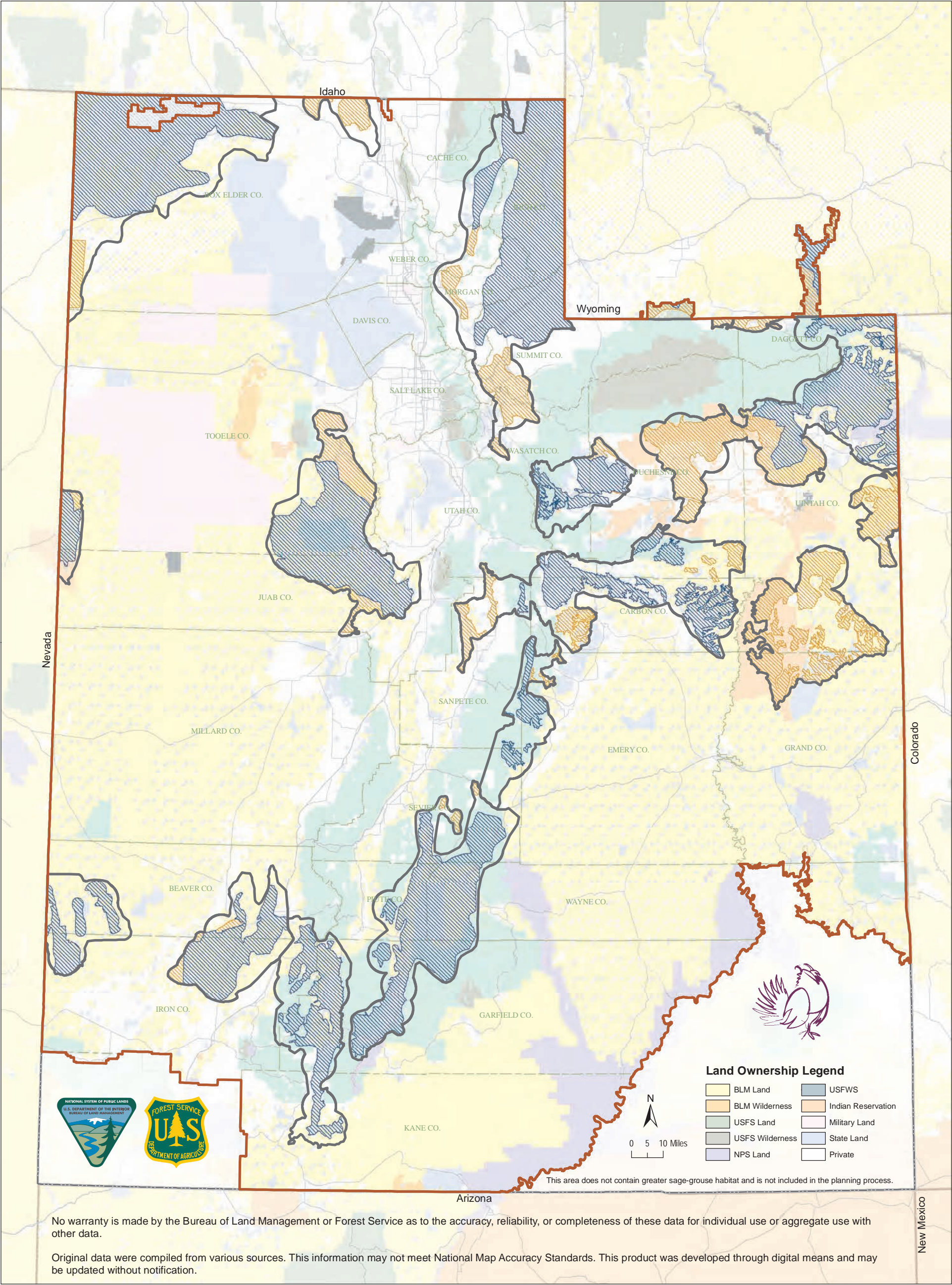
Northern Basin and Range

Southern Rockies

Middle Rocky Mountains or Colorado Plateau/Central Basin Transitional Zone

Wyoming Basin

Alternative B
Greater Sage-Grouse Priority / General Habitat Management Areas

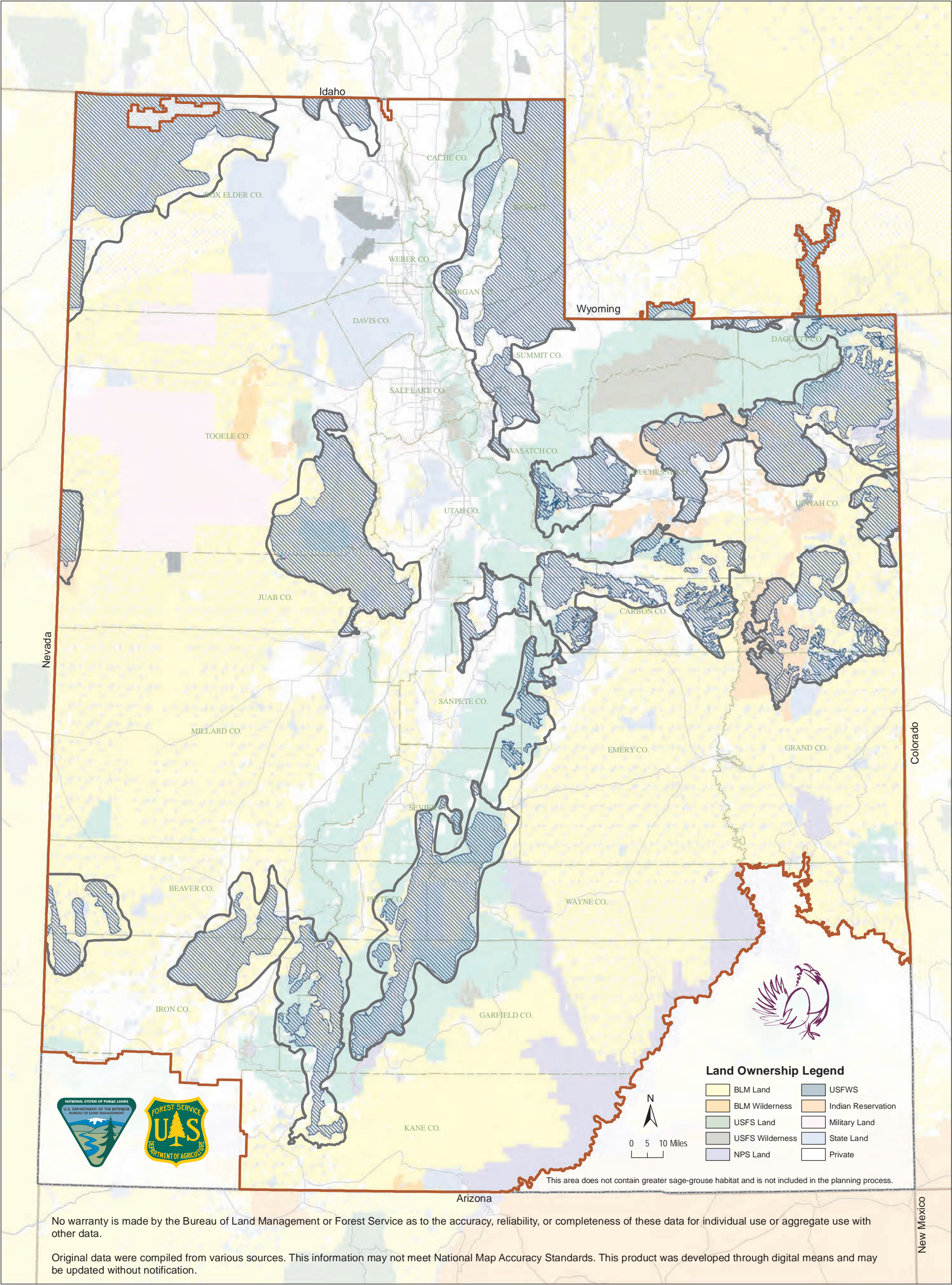


Priority / General Management Areas - Alt B

Utah Sub-Regional Planning Area General Habitat Management Areas

Population Areas Priority Habitat Management Areas

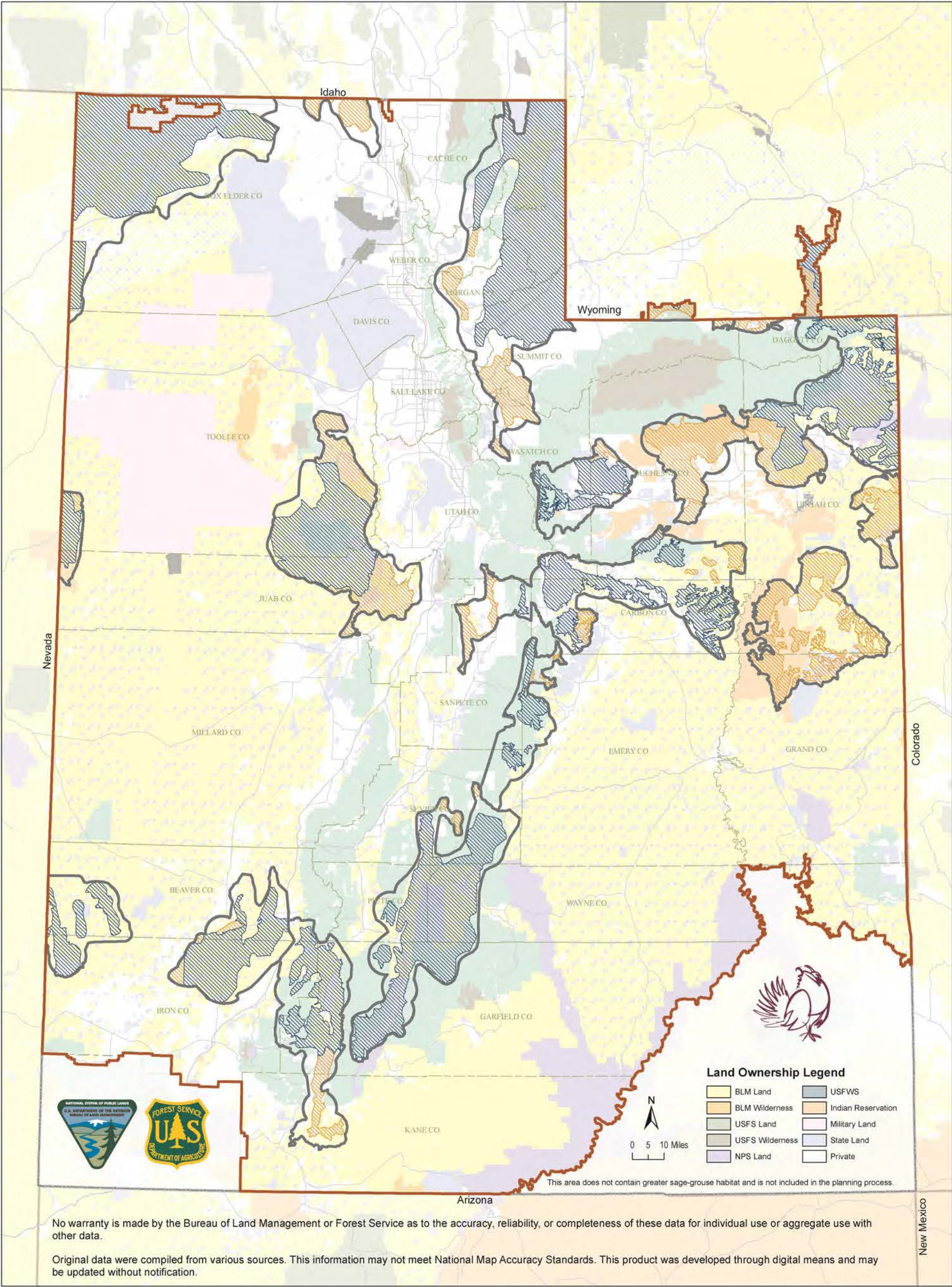
Alternative C
Greater Sage-Grouse Priority Habitat Management Areas



- Priority Management Areas - Alt C**
- Utah Sub-Regional Planning Area
 - Population Areas
 - Priority Habitat Management Areas

Alternative D

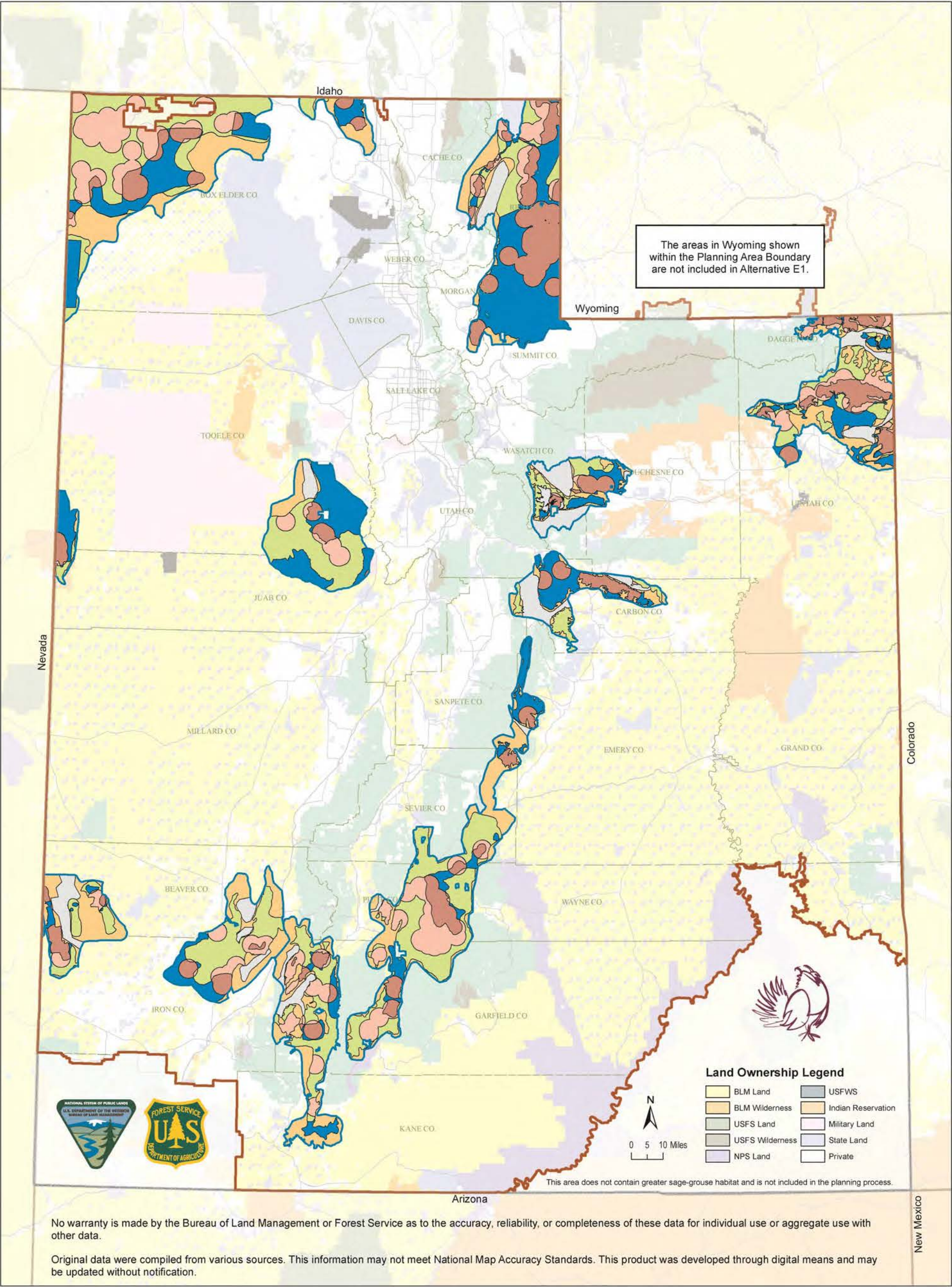
Greater Sage-Grouse Priority / General Habitat Management Areas



Priority / General Management Areas - Alt D

- Utah Sub-Regional Planning Area
- General Habitat Management Areas
- Population Areas
- Priority Habitat Management Areas

Alternative E-1
Greater Sage-Grouse Habitat within Sage-Grouse Management Areas



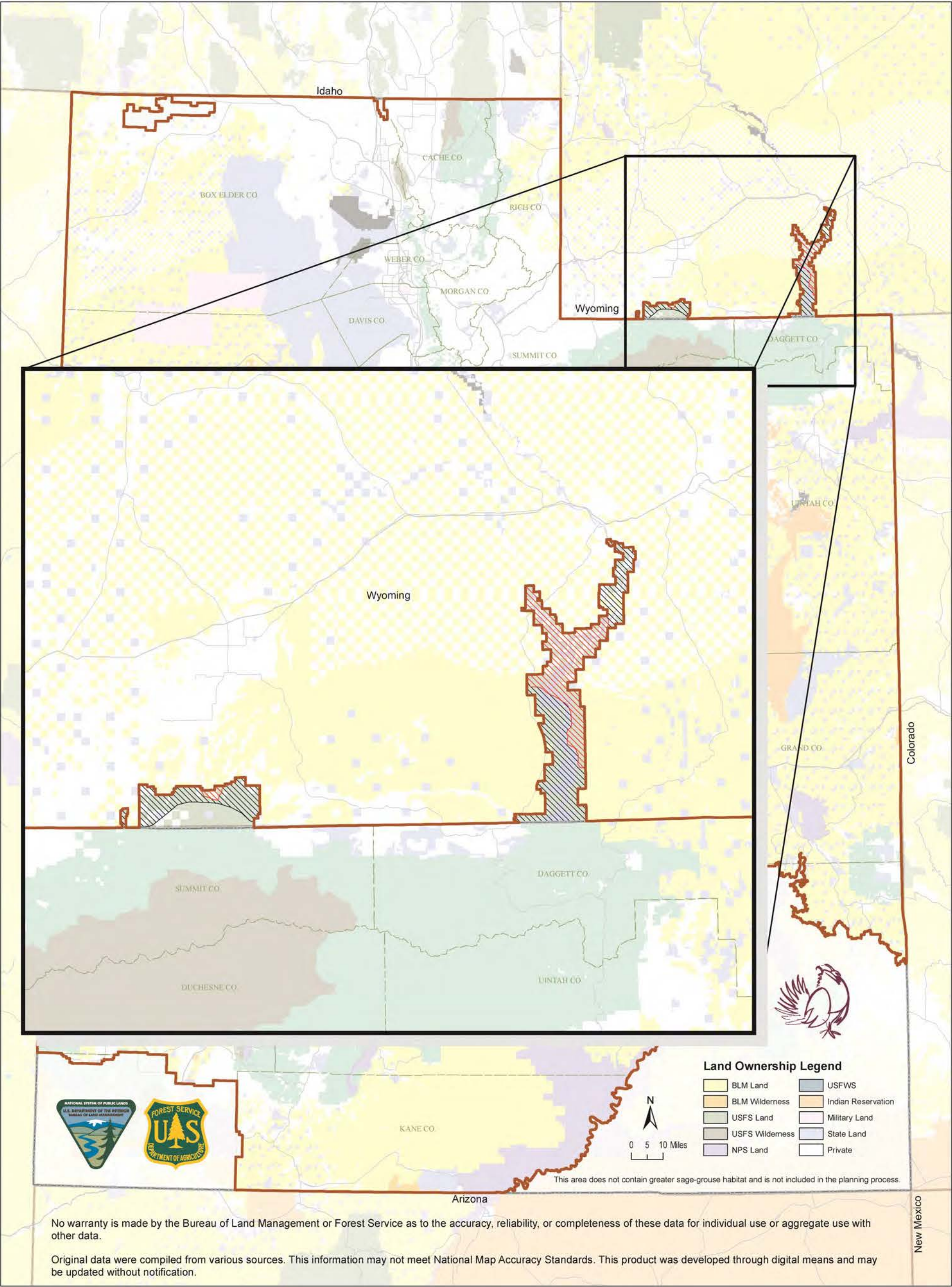
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Sage-Grouse Management Areas

Greater Sage-Grouse Habitat within SGMAs

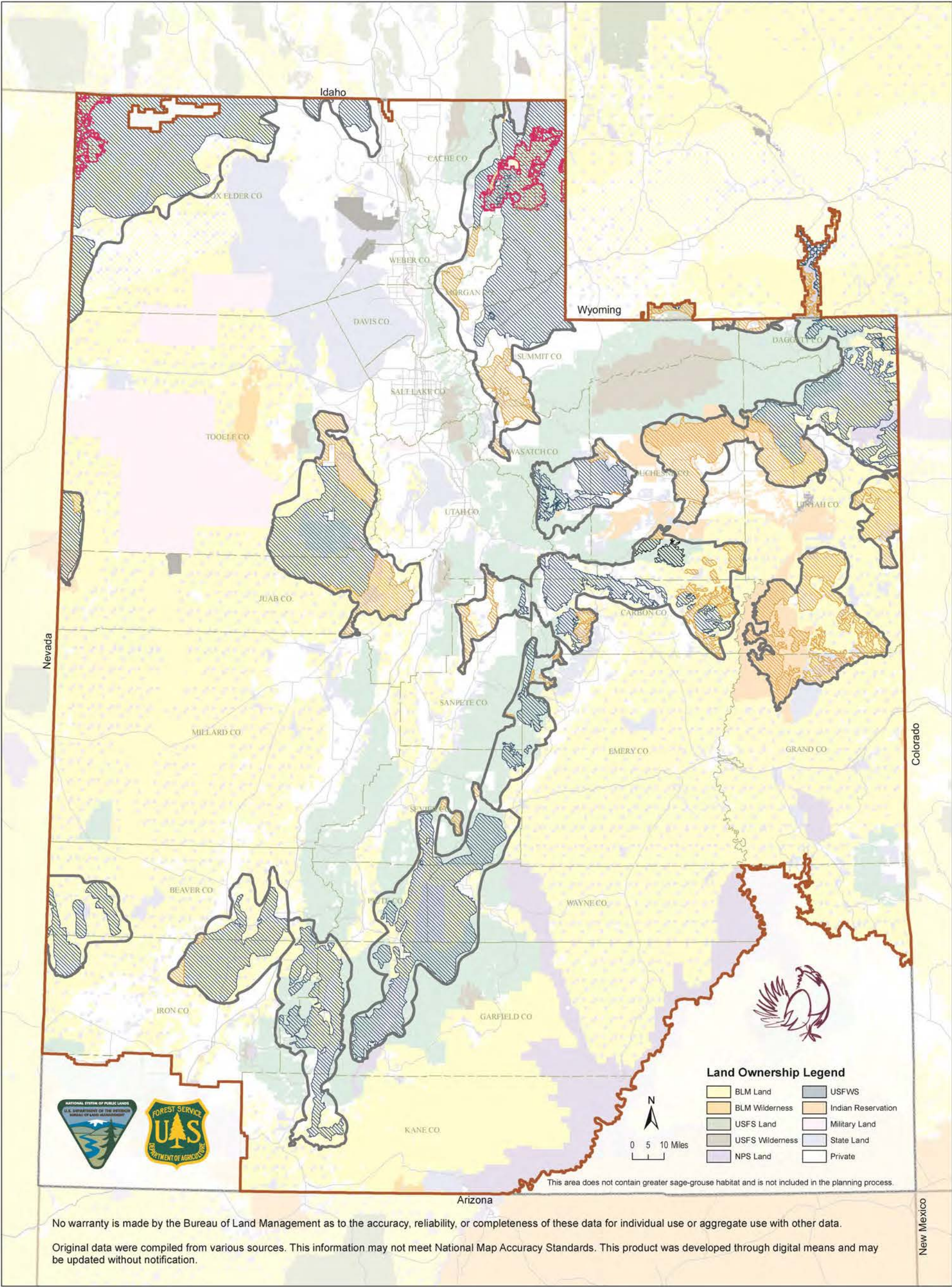
- Nesting and Brood Rearing with Winter Habitat
- Nesting and Brood Rearing Habitat
- Winter Habitat
- Other Habitat
- Opportunity Areas
- Non-Habitat Areas

Alternative E-2
Greater Sage-Grouse Core and Non-Core Areas in Wyoming



- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Core Habitat - Wyoming
 - Non-Core Habitat - Wyoming

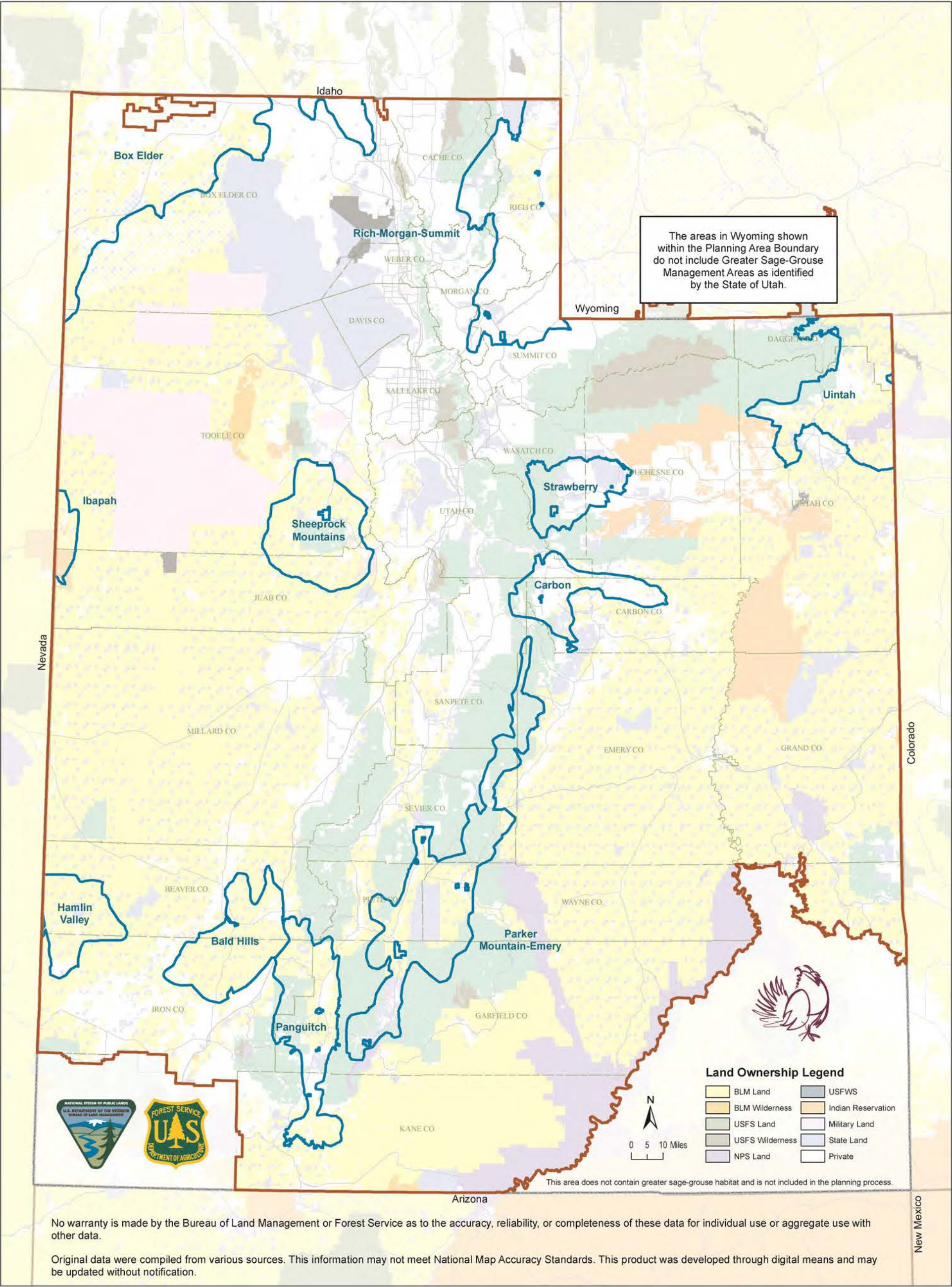
Greater Sage-Grouse Priority / General Management Areas and Sagebrush Focal Areas



Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Sagebrush Focal Areas
- General Habitat Management Areas
- Priority Habitat Management Areas
- Occupied - Anthro Mountain

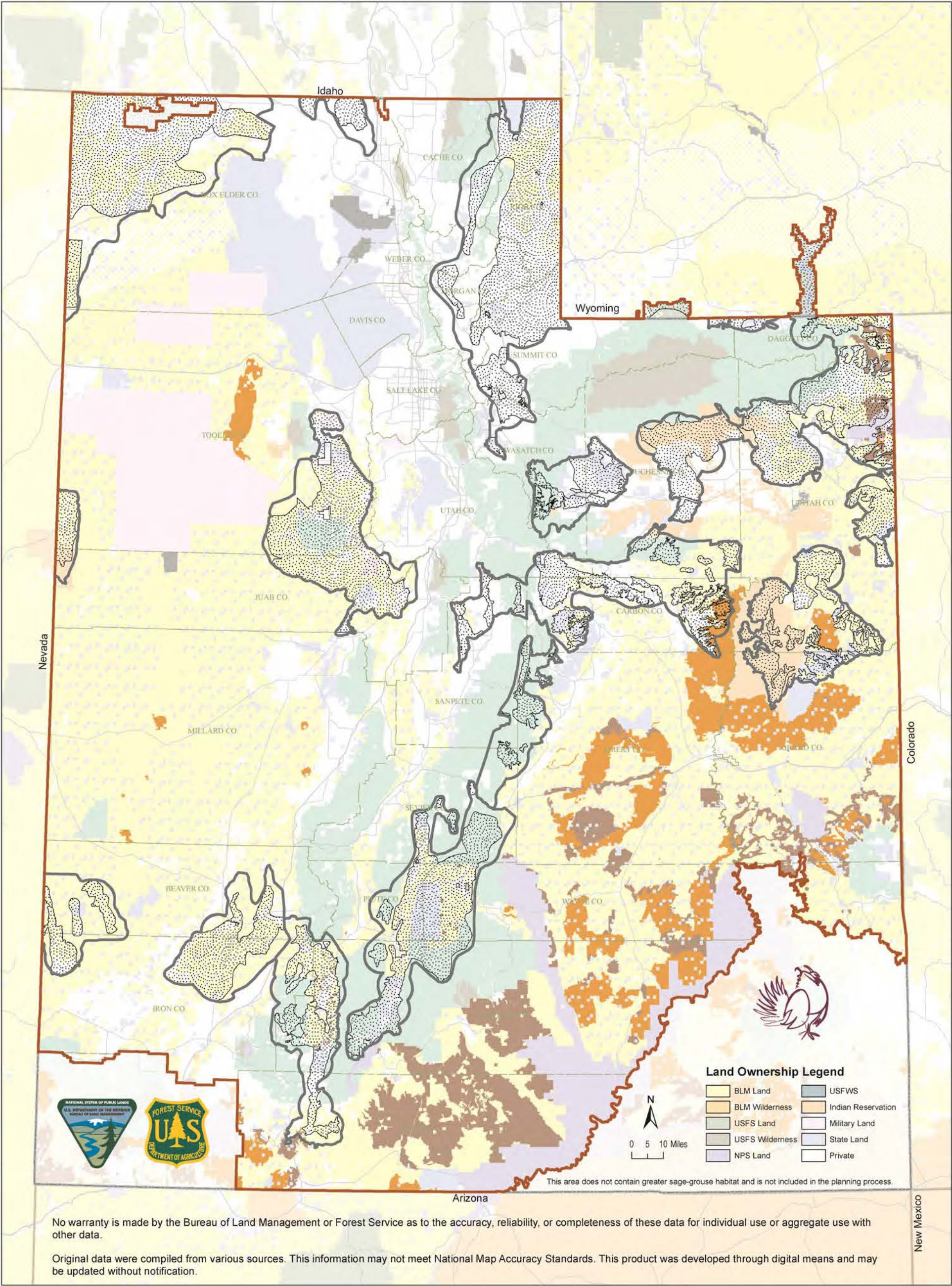
State of Utah Sage-Grouse Habitat Management Areas



Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- State of Utah Greater Sage-Grouse Habitat Management Areas

Alternative A
Rights-of-Way Avoidance and Exclusion Areas



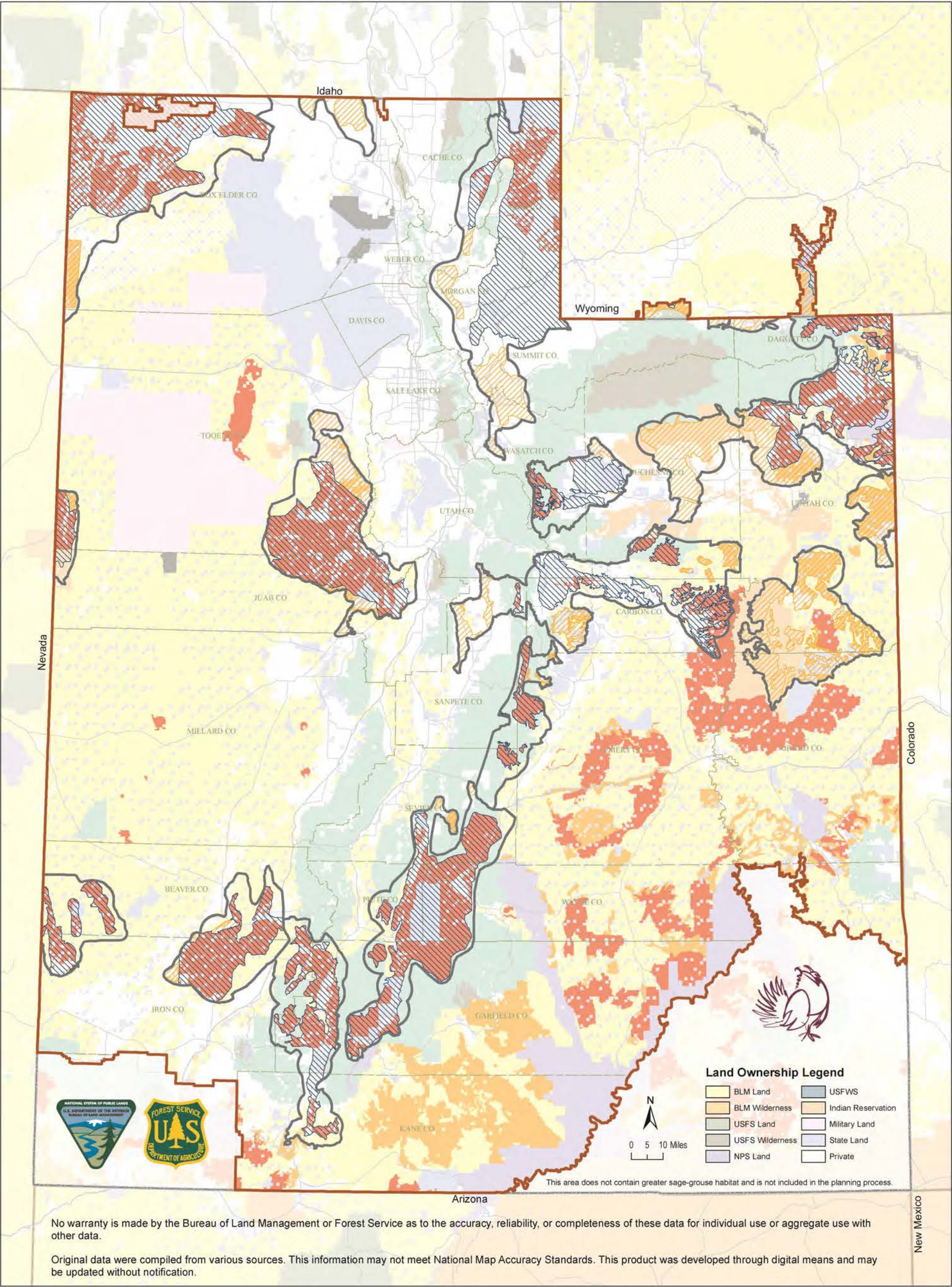
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Rights-of-Way Avoidance and Exclusion Areas

- Right-of-Way Avoidance Areas
- Right-of-Way Exclusion Areas

Alternative B
Rights-of-Way Avoidance and Exclusion Areas



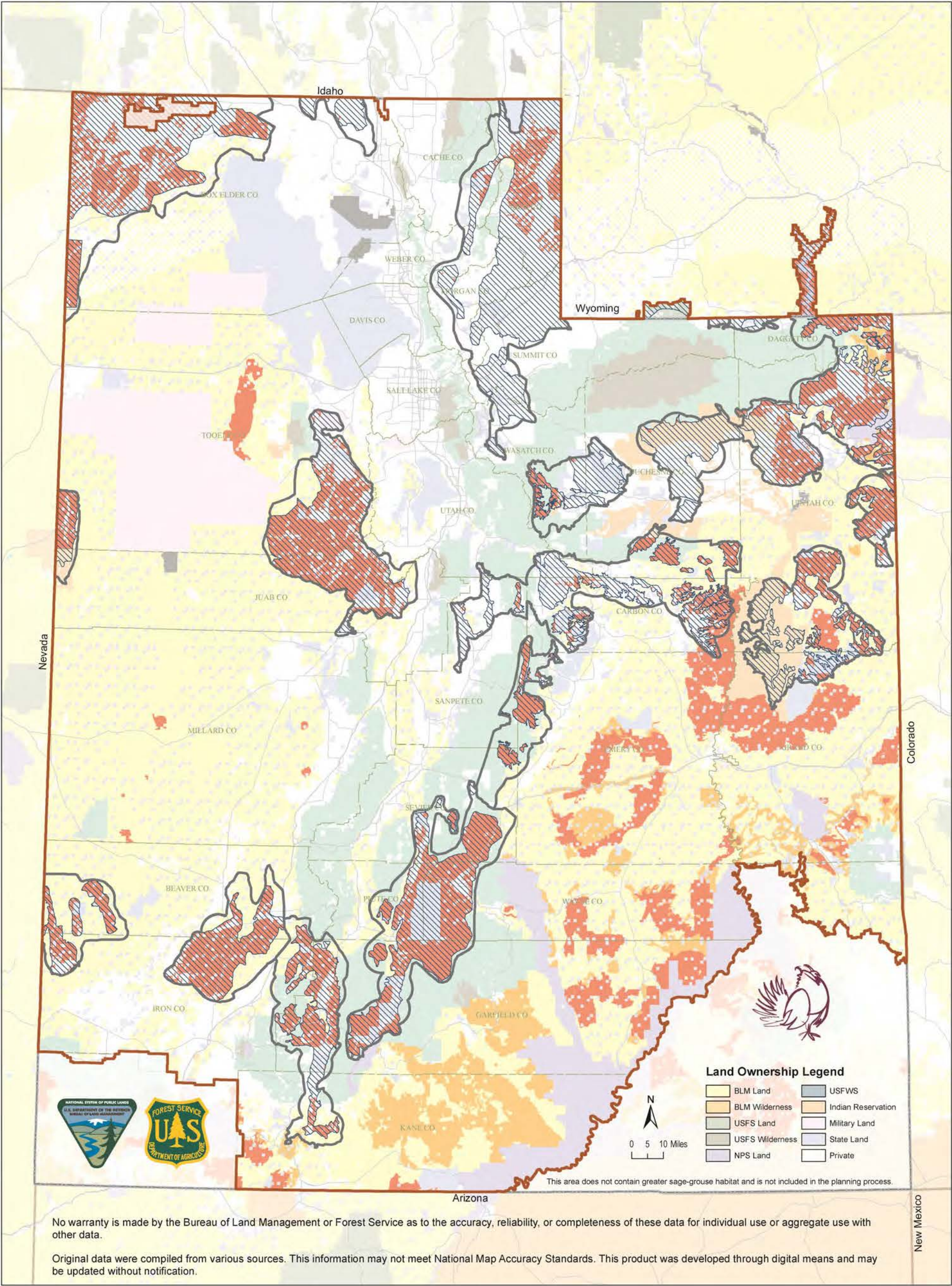
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative B - General
- Alternative B - Priority

Rights-of-Way Avoidance and Exclusion Areas

- Avoidance Areas
- Exclusion Areas

Alternative C
Rights-of-Way Avoidance and Exclusion Areas



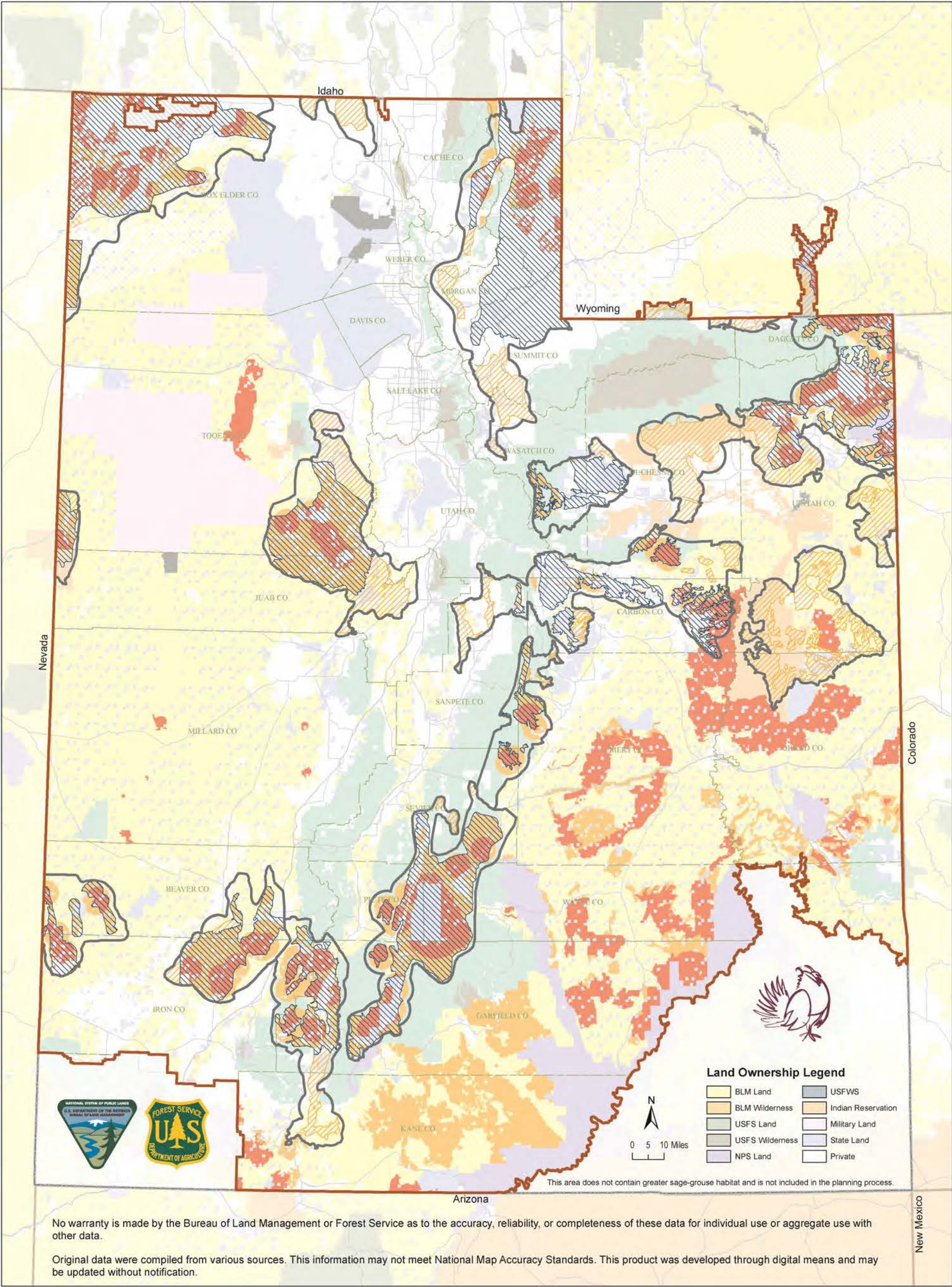
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative C - Priority

Rights-of-Way Avoidance and Exclusion Areas

- Avoidance Areas
- Exclusion Areas

Alternative D
Avoidance and Exclusion Areas for Above Ground Linear Rights-of-Way



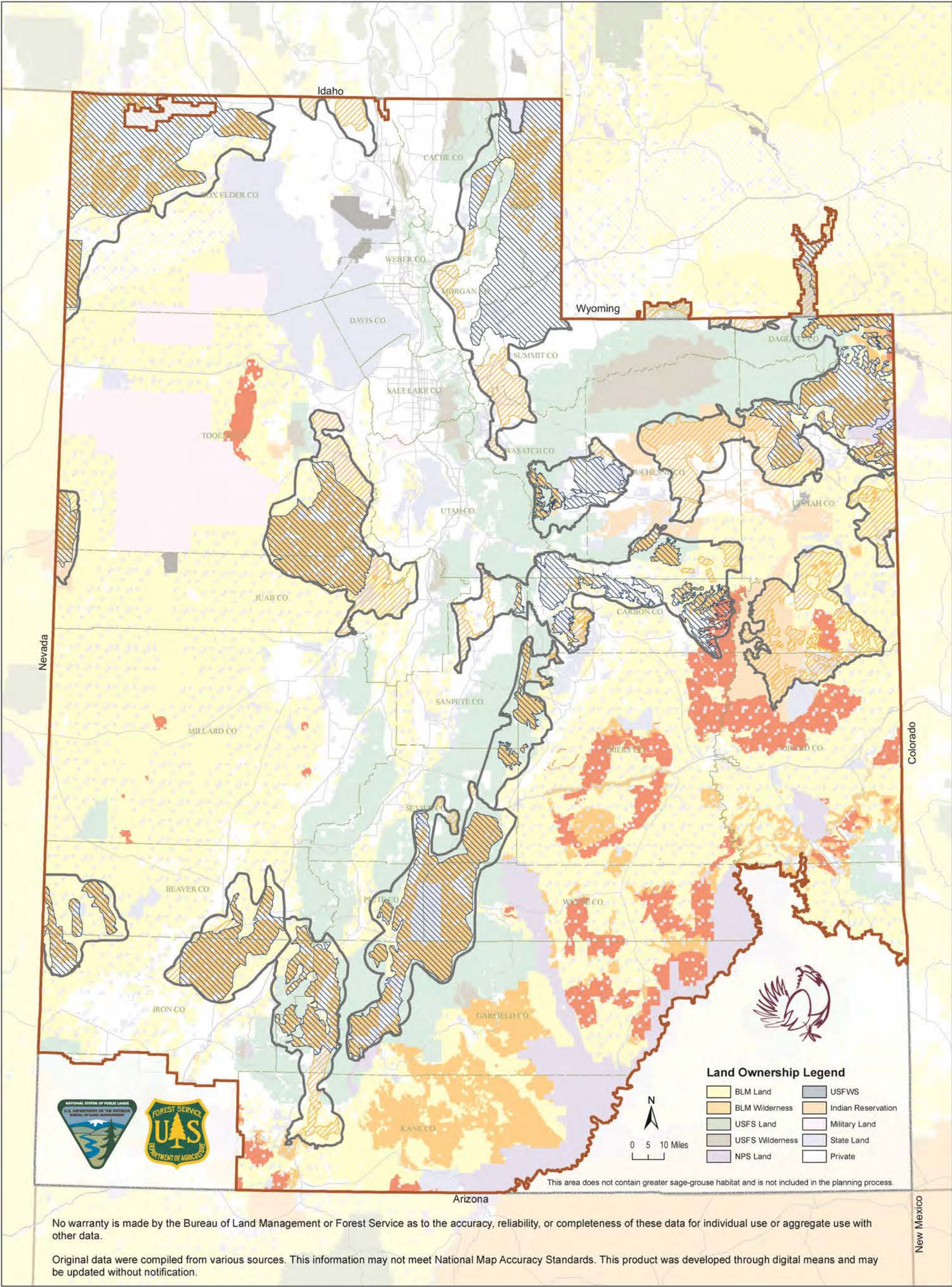
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative D - General Habitat
- Alternative D - Priority Habitat

Avoidance and Exclusion Areas for Above Ground Linear Rights-of-Way

- Avoidance Areas
- Exclusion Areas

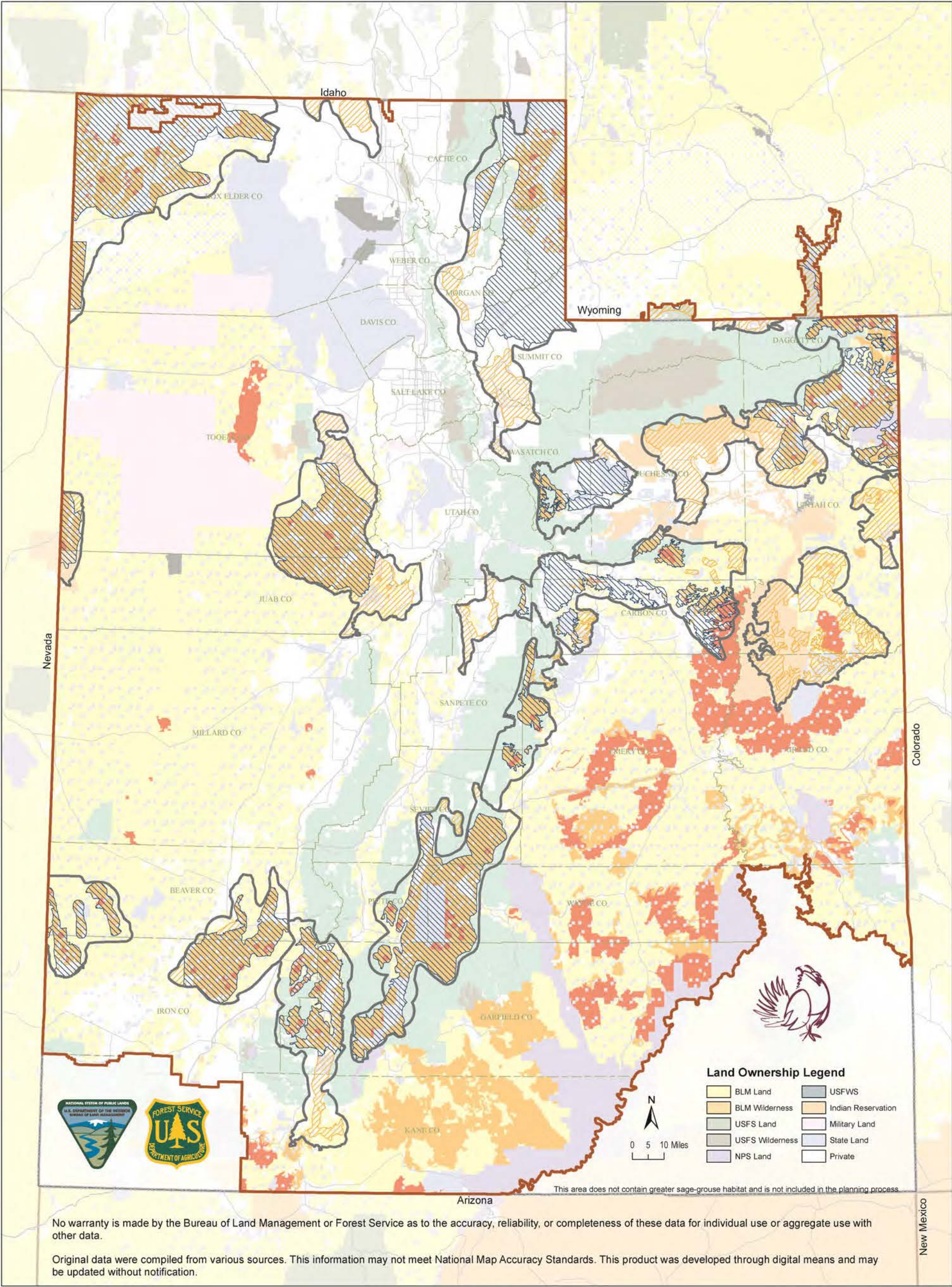
Avoidance and Exclusion Areas for Surface and Underground Linear Rights-of-Way



- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Population Areas
 - Alternative D - General
 - Alternative D - Priority

- Avoidance and Exclusion Areas for Surface and Underground Linear Rights-of-Way**
- Avoidance Areas
 - Exclusion Areas

Avoidance and Exclusion Areas for Above Ground Site Types (Excluding Wind) Rights-of-Way



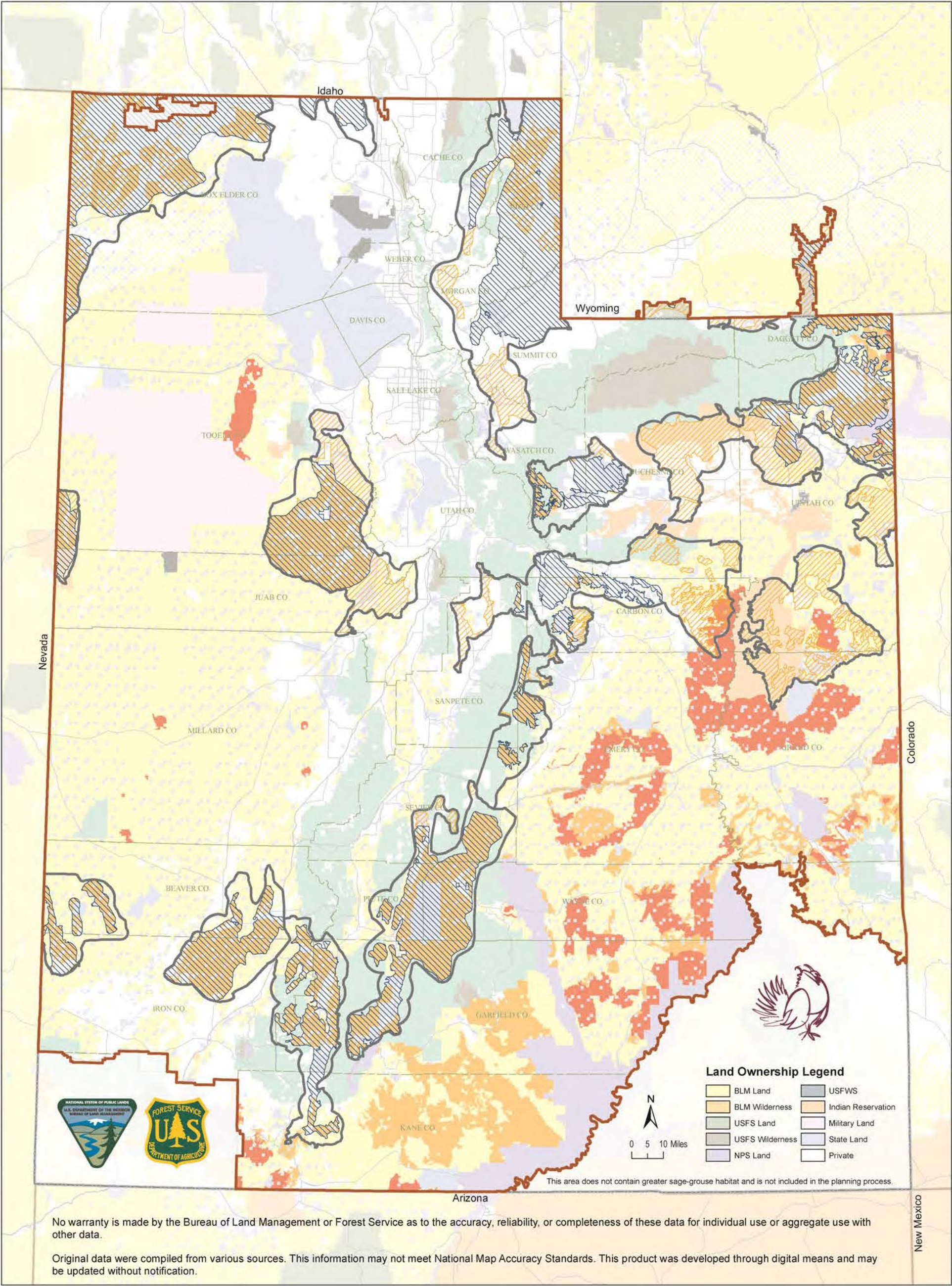
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative D - General
- Alternative D - Priority

Avoidance and Exclusion Areas for Site Types (Excluding Wind) Rights-of-Way

- Avoidance Areas
- Exclusion Areas

Alternative E
Rights-of-Way Avoidance and Exclusion Areas



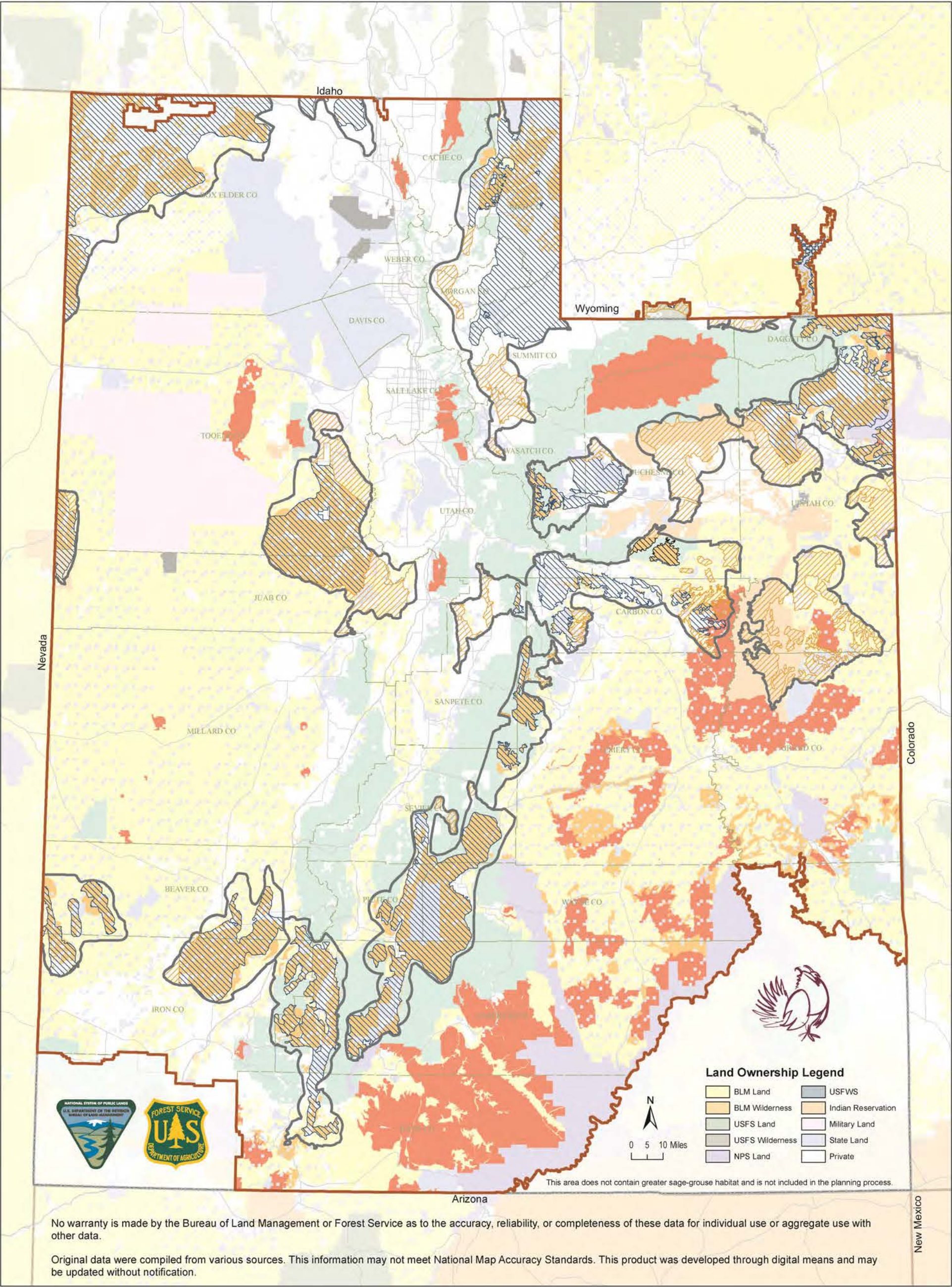
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative E - Habitat Outside SGMAs
- Alternative E - Habitat Inside SGMAs

Rights-of-Way Avoidance and Exclusion Areas

- Avoidance Areas
- Exclusion Areas

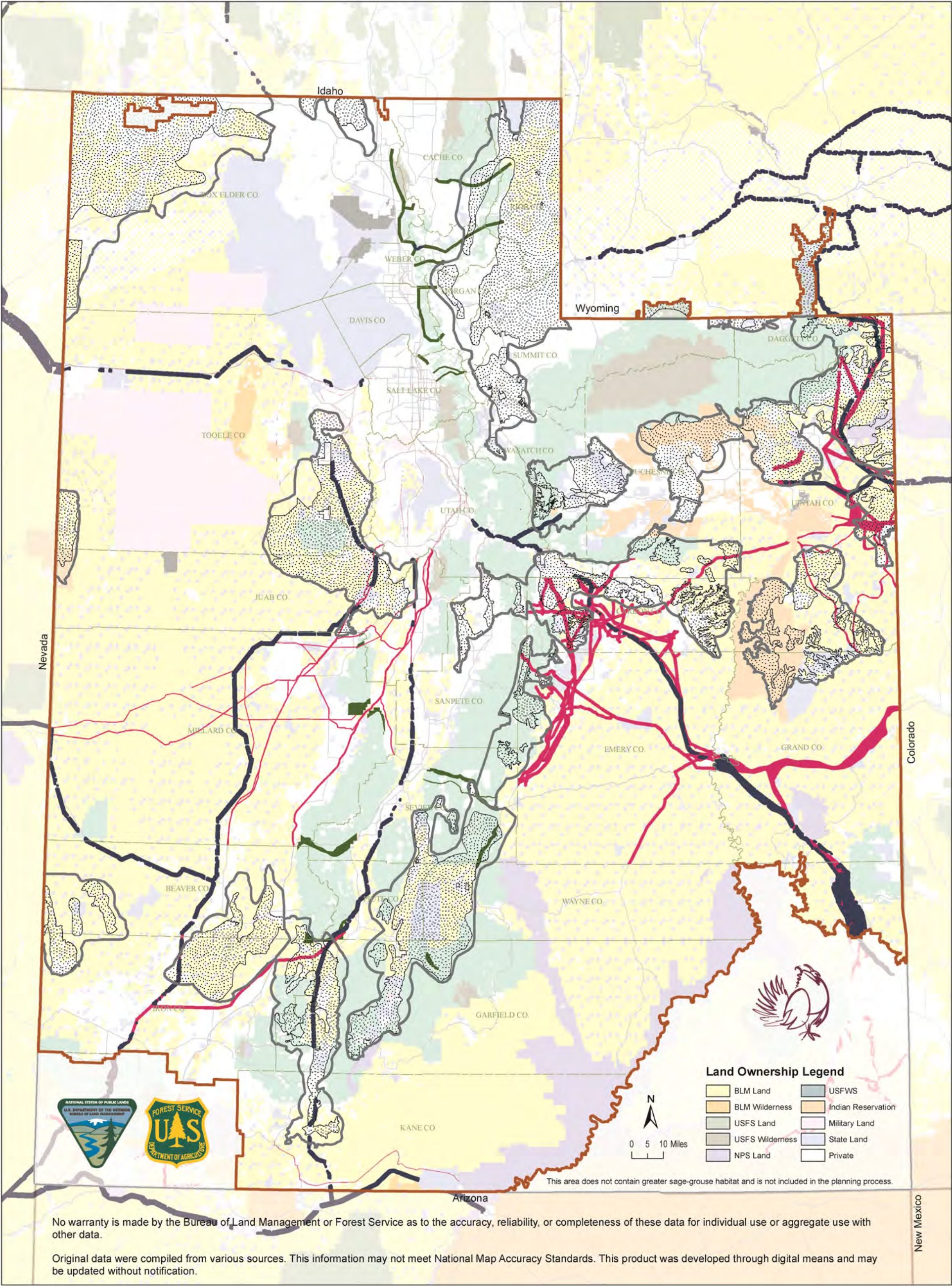
Proposed Plan
Rights-of-Way Avoidance and Exclusion Areas



- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Population Areas
 - General Habitat Management Areas
 - Priority Habitat Management Areas
 - Occupied - Anthro Mountain

- Rights-of-Way Avoidance and Exclusion Areas**
- Avoidance Areas
 - Exclusion Areas

Alternative A
Designated Rights-of-Way Corridors



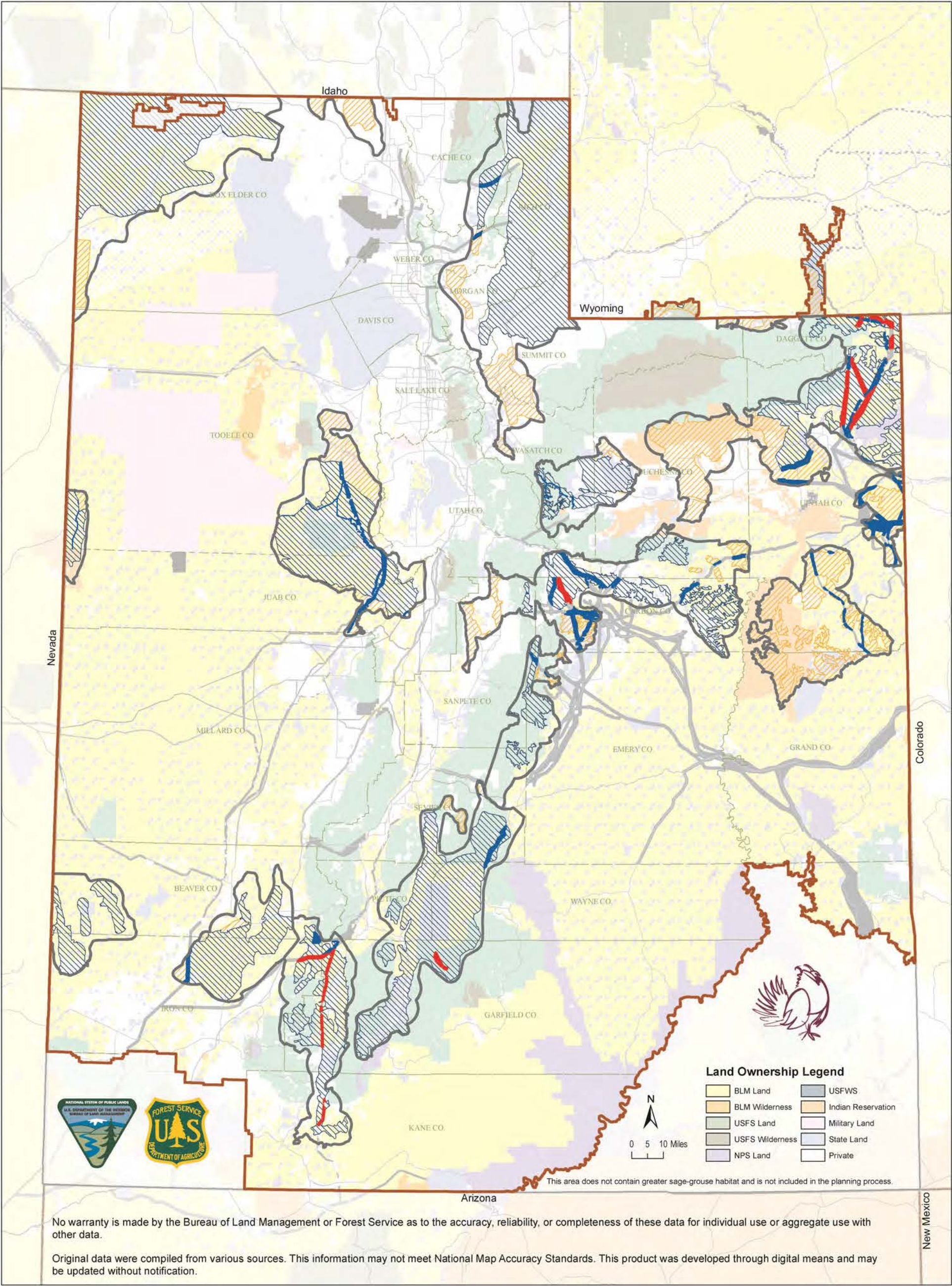
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Rights-of-Way Corridors

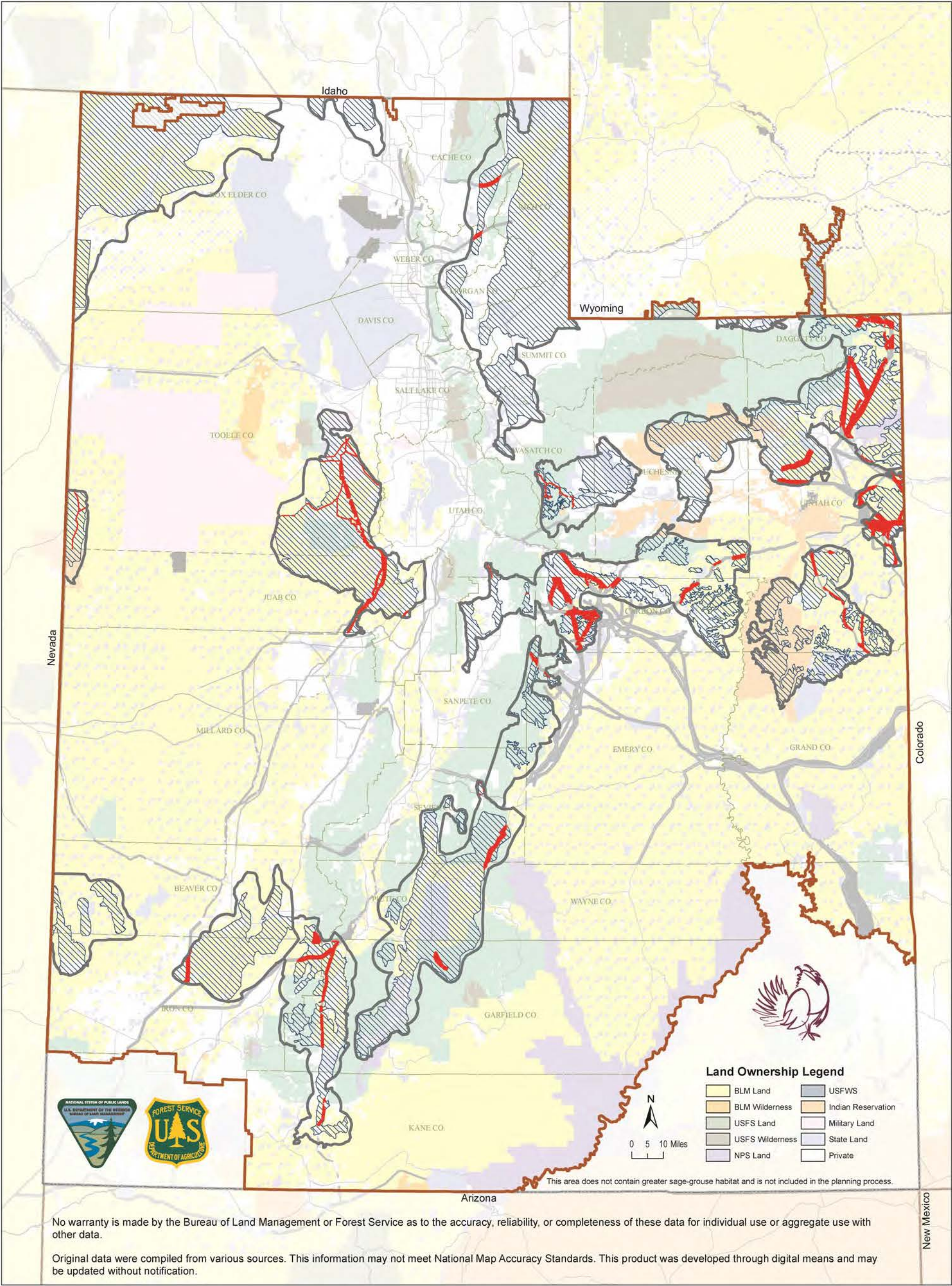
- WECC Corridors
- BLM RMP Designated Utility Corridors
- FS Utility Corridors

Alternative B
Designated Rights-of-Way Corridors



- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Population Areas
 - Alternative B - General
 - Alternative B - Priority
- Rights-of-Way Corridors**
- Existing Corridors to be Undesignated
 - Existing Corridors to be Retained
 - Existing Designated Corridors

Alternative C
Designated Rights-of-Way Corridors



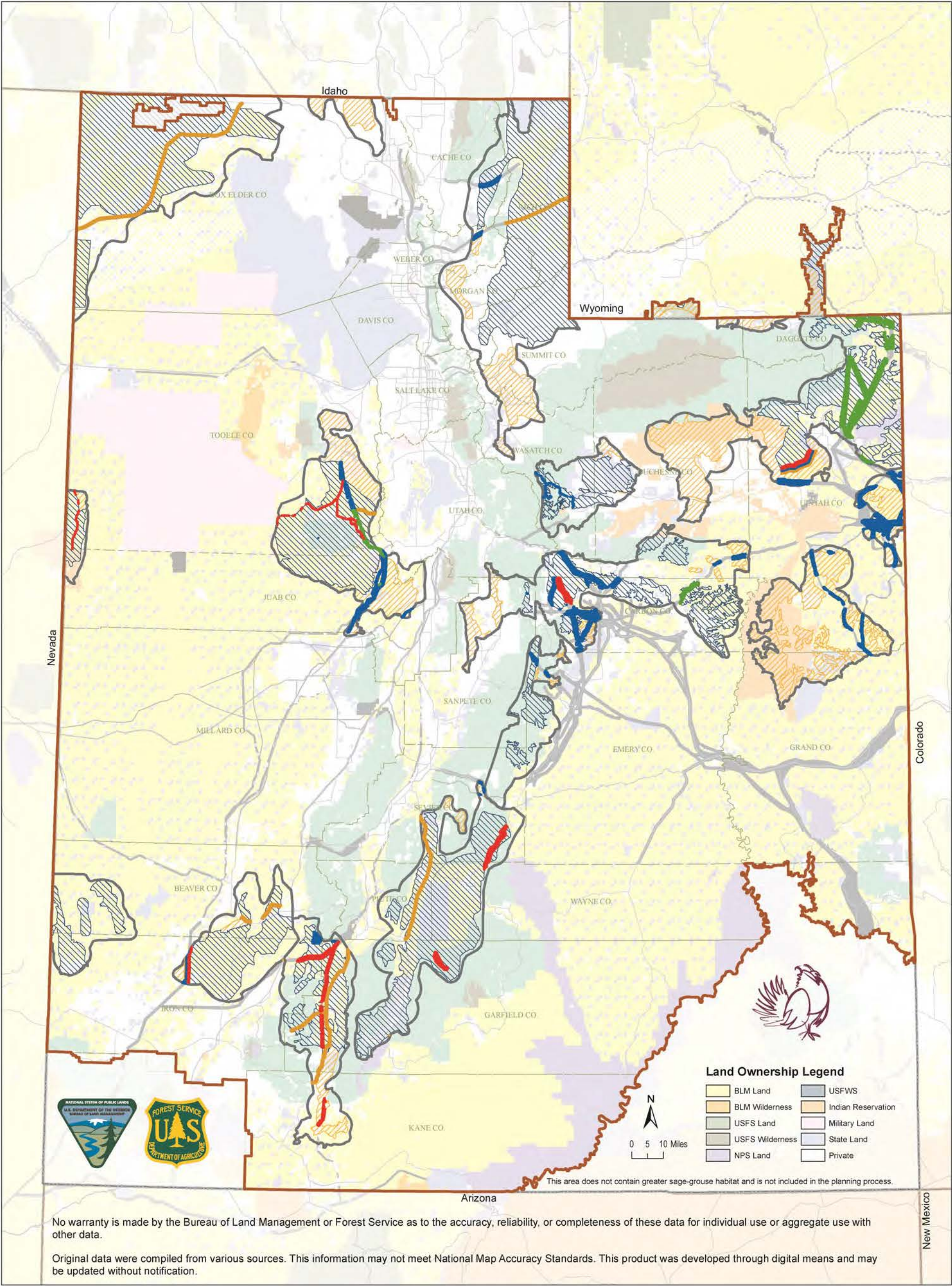
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative C - Priority

Rights-of-Way Corridors

- Existing Corridors to be Undesignated
- Existing Designated Corridors

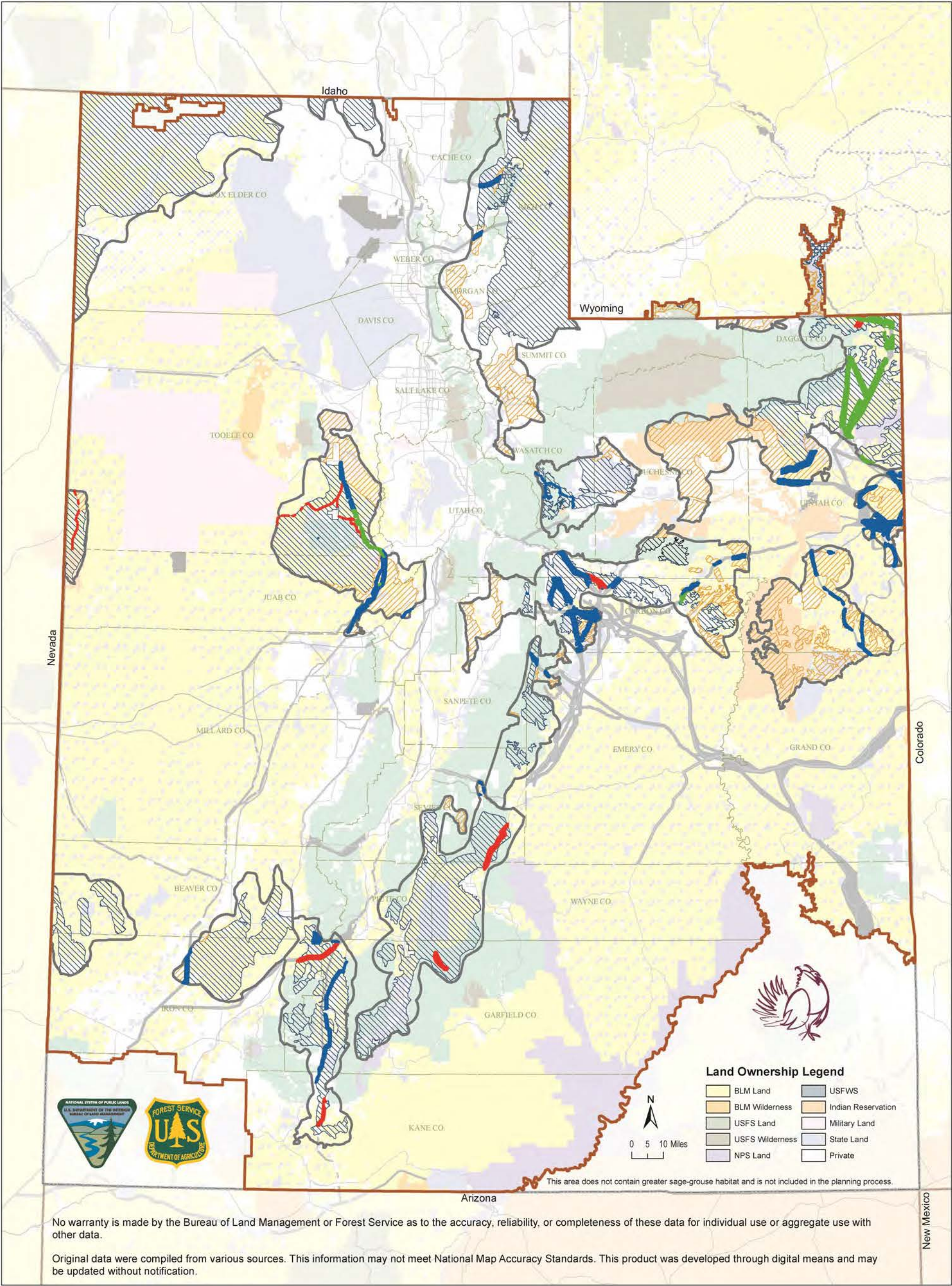
Alternative D
Designated Rights-of-Way Corridors



- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Population Areas
 - Alternative D - General
 - Alternative D - Priority

- Rights-of-Way Corridors**
- Existing Corridors to be Undesignated
 - Existing Corridors to be Retained
 - Existing Corridors to be Retained - Subsurface Use Only
 - Proposed Utility Corridors
 - Existing Designated Corridors

Proposed Plan
Designated Rights-of-Way Corridors



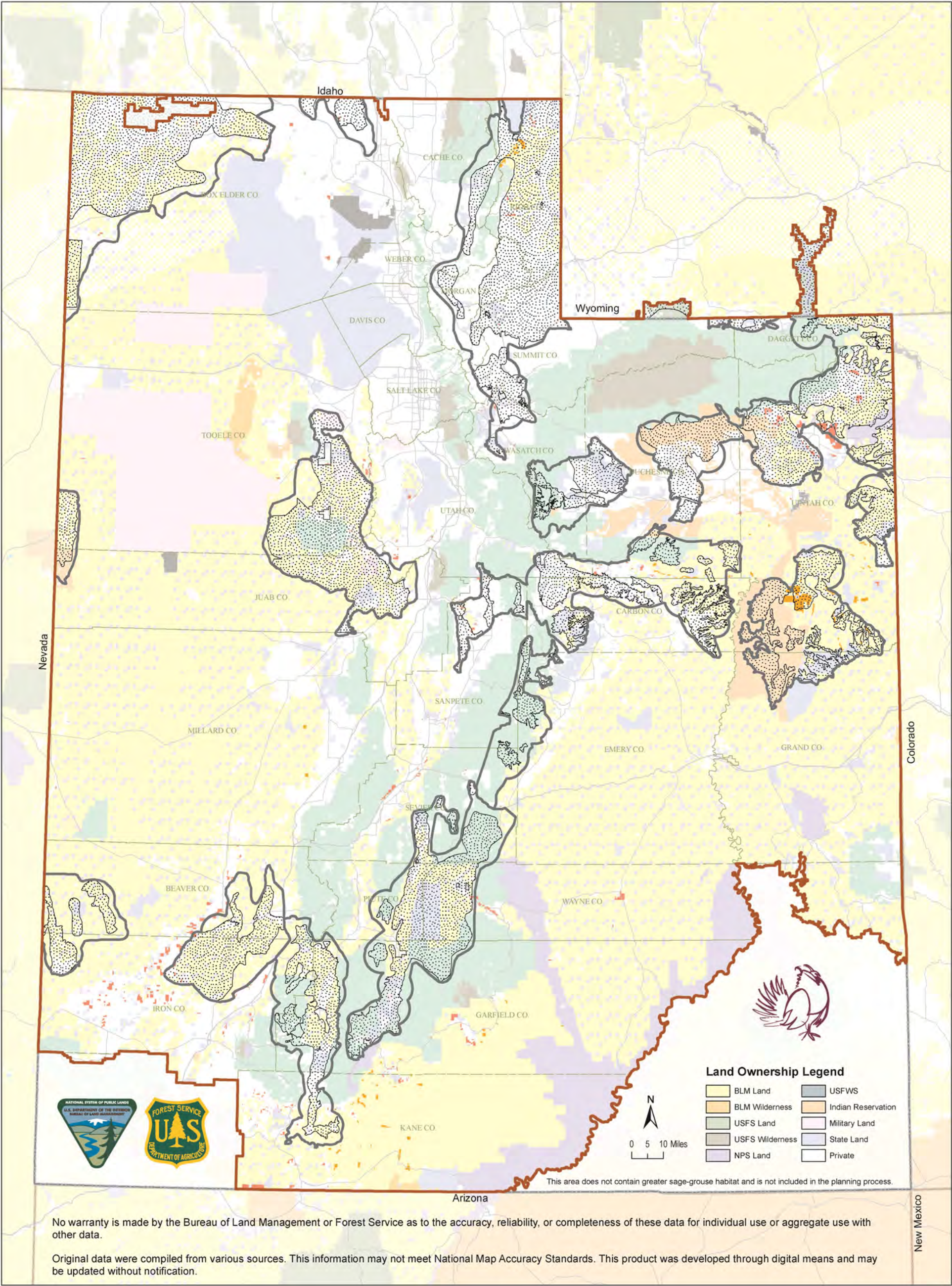
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- General Habitat Management Areas
- Priority Habitat Management Areas
- Occupied - Anthro Mountain

Rights-of-Way Corridors

- Existing Corridors to be Undesignated
- Existing Corridors to be Retained
- Existing Corridors to be Retained - Subsurface Use Only
- Existing Designated Corridors

Alternative A
Land Tenure Adjustments



Greater Sage-Grouse Areas

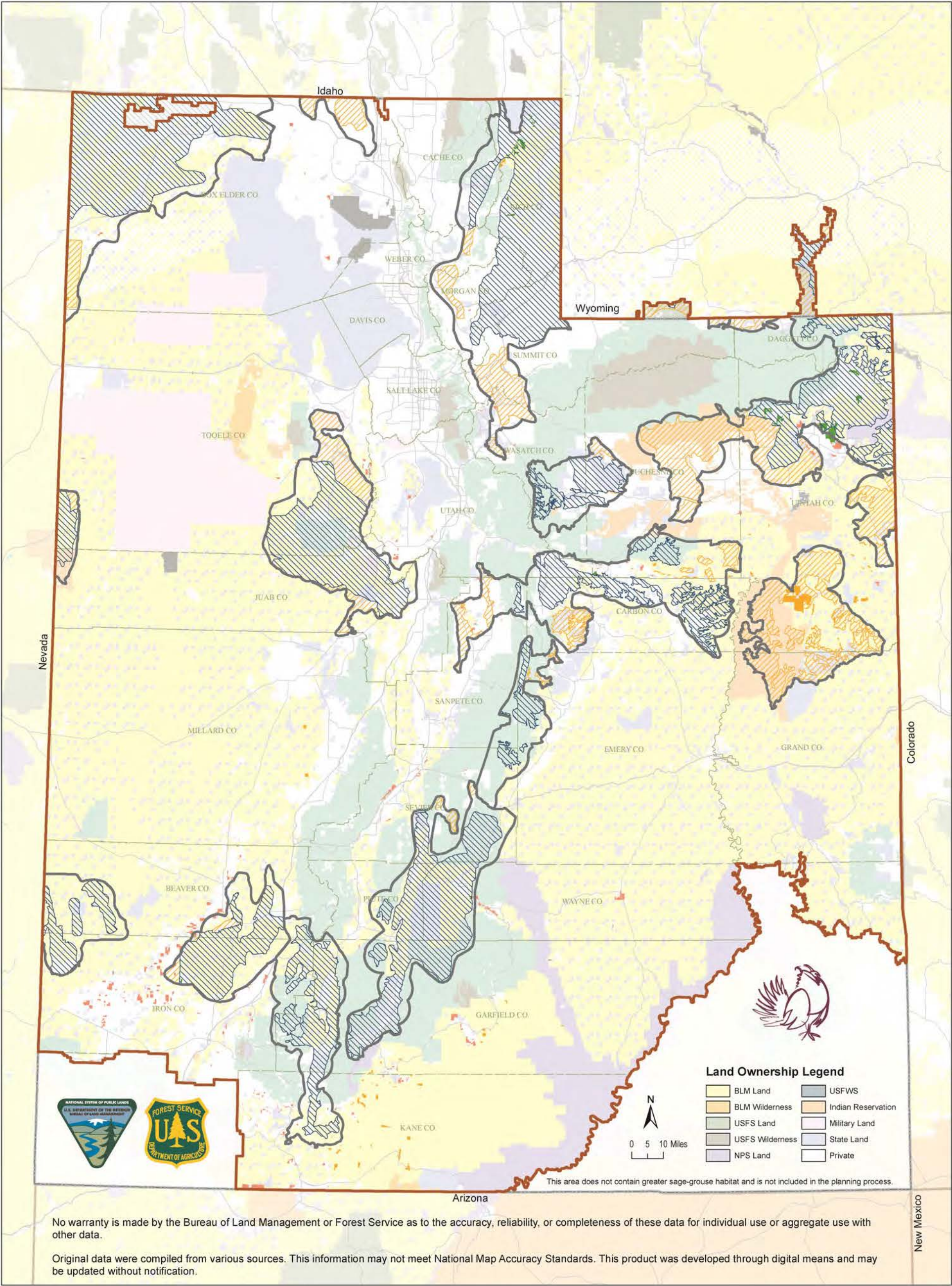
- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Land Tenure Adjustments

- Lands Identified for Acquisition
- Lands Identified for Disposal

In Section 102 of FLPMA Congress declared: "it is the policy of the United States that the public lands be retained in Federal ownership, unless as a result of the land use planning...it is determined that disposal of a particular parcel will serve the national interest" (43 U.S.C. 1701 (a)(1)). While not specifically mapped as retention areas, public lands are managed according to this Congressional direction, as well as disposal authorities in FLPMA Sections 203 and 206 and other non-FLPMA legal disposal authorities. Land tenure adjustments in PHMA/GHMA would also be consistent with the land use plan direction.

Alternative B
Land Tenure Adjustments



Greater Sage-Grouse Areas

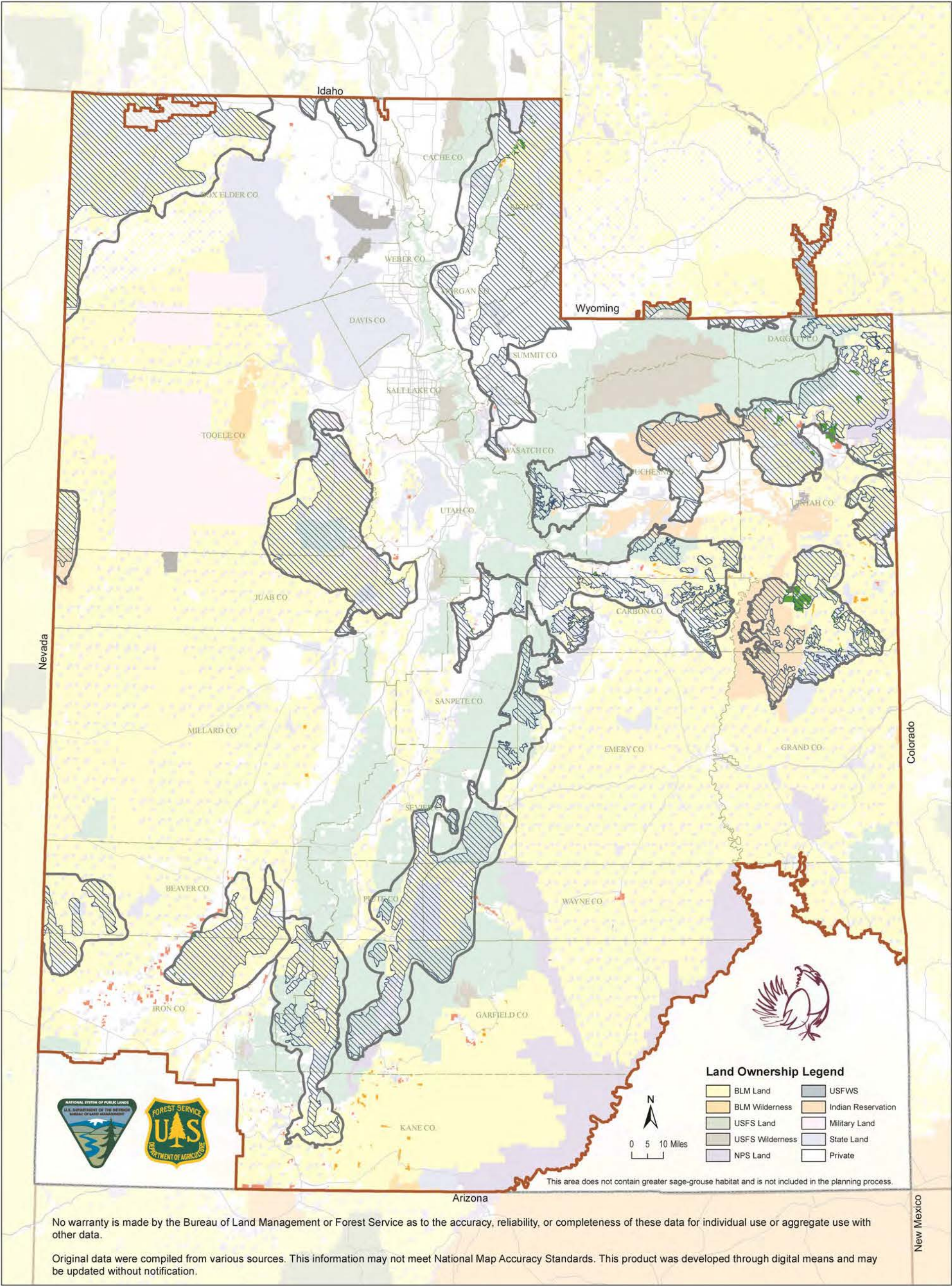
- Utah Sub-Regional Planning Area
- Population Areas
- Alternative B - General
- Alternative B - Priority

Land Tenure Adjustments

- Lands Identified for Acquisition
- Lands Identified for Disposal
- Disposal Lands Identified for Retention

In Section 102 of FLPMA Congress declared: "it is the policy of the United States that the public lands be retained in Federal ownership, unless as a result of the land use planning...it is determined that disposal of a particular parcel will serve the national interest" (43 U.S.C. 1701 (a)(1)). While not specifically mapped as retention areas, public lands are managed according to this Congressional direction, as well as disposal authorities in FLPMA Sections 203 and 206 and other non-FLPMA legal disposal authorities. Land tenure adjustments in PHMA/GHMA would also be consistent with the land use plan direction.

Alternative C
Land Tenure Adjustments



Greater Sage-Grouse Areas

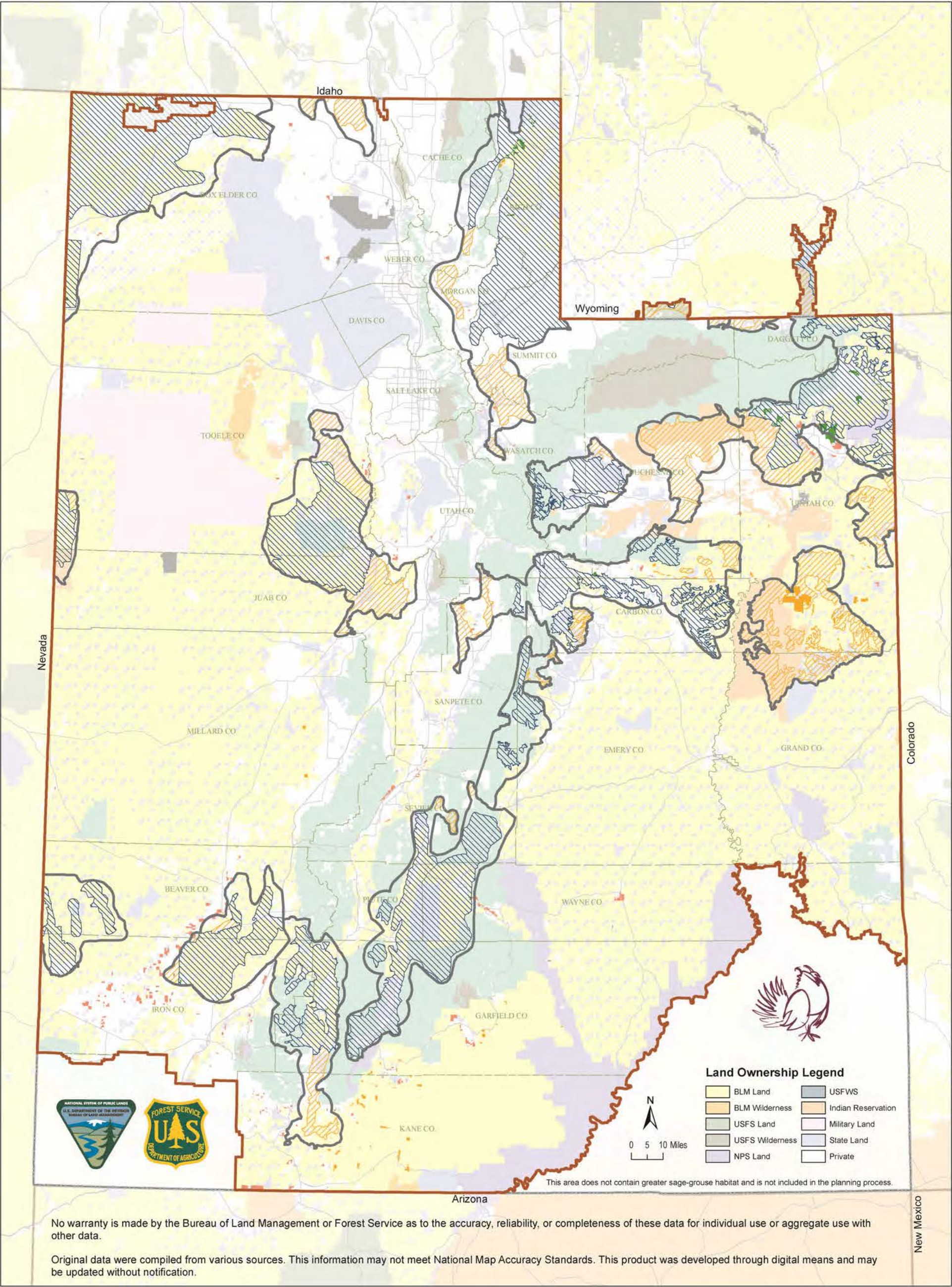
- Utah Sub-Regional Planning Area
- Population Areas
- Alternative C - Priority

Land Tenure Adjustments

- Lands Identified for Acquisition
- Lands Identified for Disposal
- Disposal Lands Identified for Retention

In Section 102 of FLPMA Congress declared: "it is the policy of the United States that the public lands be retained in Federal ownership, unless as a result of the land use planning...it is determined that disposal of a particular parcel will serve the national interest" (43 U.S.C. 1701 (a)(1)). While not specifically mapped as retention areas, public lands are managed according to this Congressional direction, as well as disposal authorities in FLPMA Sections 203 and 206 and other non-FLPMA legal disposal authorities. Land tenure adjustments in PHMA/GHMA would also be consistent with the land use plan direction.

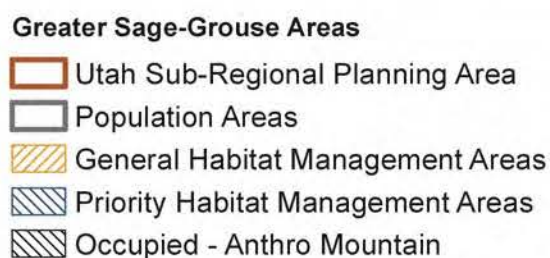
Alternative D
Land Tenure Adjustments



- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Population Areas
 - Alternative D - General
 - Alternative D - Priority

- Land Tenure Adjustments**
- Lands Identified for Acquisition
 - Lands Identified for Disposal
 - Disposal Lands Identified for Retention

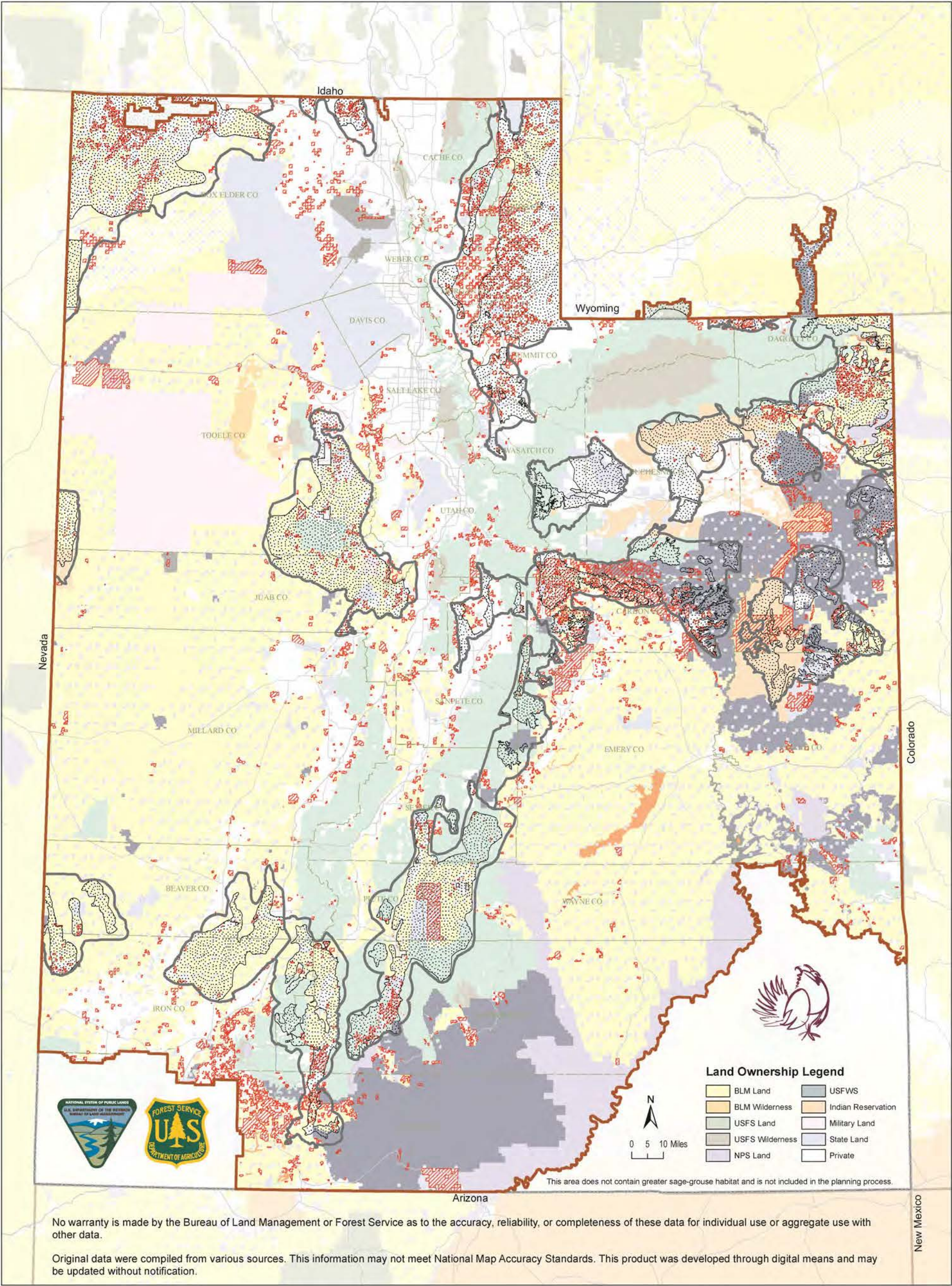
In Section 102 of FLPMA Congress declared: "it is the policy of the United States that the public lands be retained in Federal ownership, unless as a result of the land use planning...it is determined that disposal of a particular parcel will serve the national interest" (43 U.S.C. 1701 (a)(1)). While not specifically mapped as retention areas, public lands are managed according to this Congressional direction, as well as disposal authorities in FLPMA Sections 203 and 206 and other non-FLPMA legal disposal authorities. Land tenure adjustments in PHMA/GHMA would also be consistent with the land use plan direction.



 Lands Identified for Disposal

In Section 102 of FLPMA Congress declared: "it is the policy of the United States that the public lands be retained in Federal ownership, unless as a result of the land use planning...it is determined that disposal of a particular parcel will serve the national interest" (43 U.S.C. 1701 (a)(1)). While not specifically mapped as retention areas, public lands are managed according to this Congressional direction,

Alternative A
Locatable Mineral Withdrawals



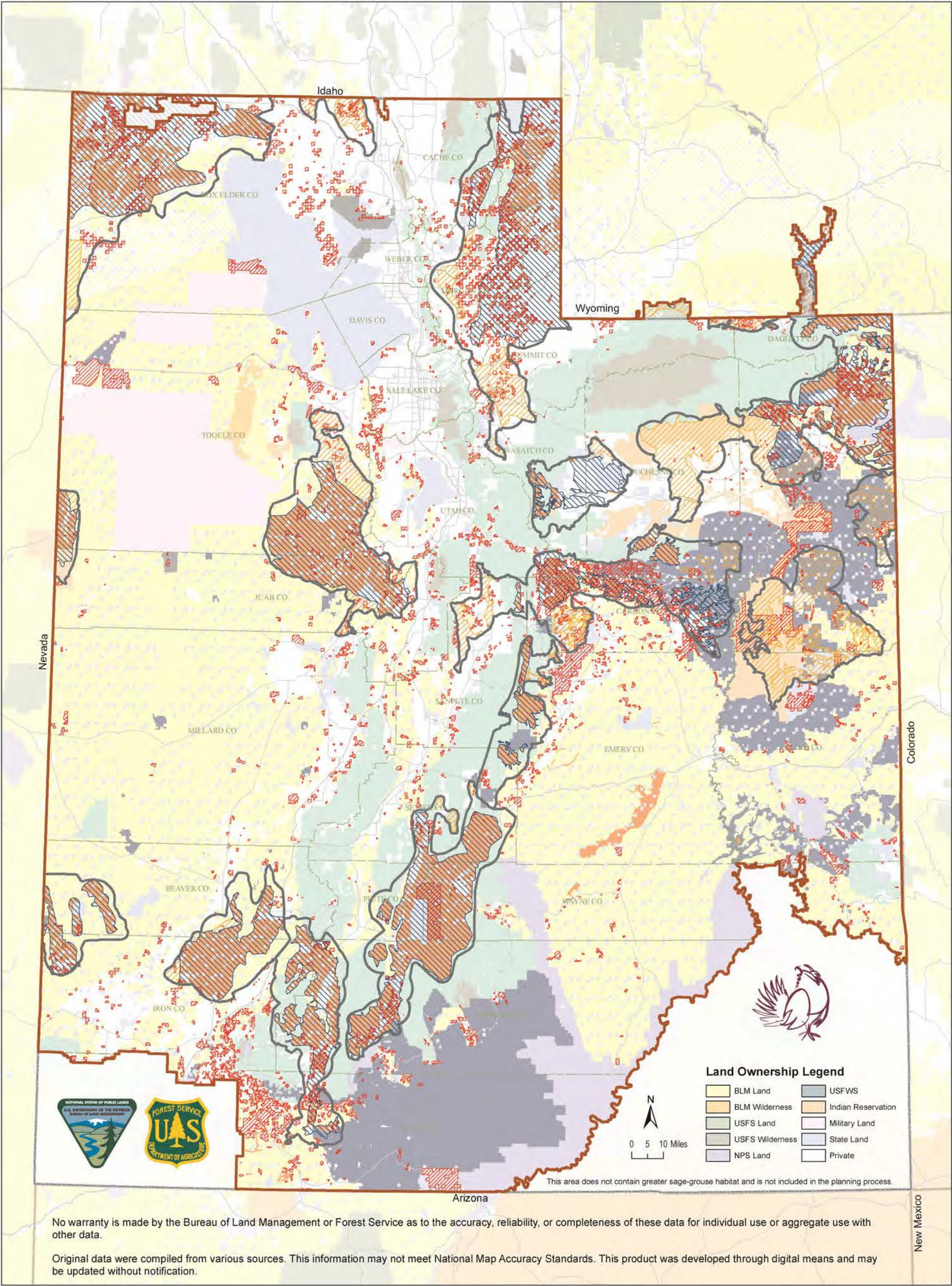
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Locatable Mineral Withdrawals

- Existing Mineral Withdrawals
- Proposed Mineral Withdrawals
- Federal Mineral Interest on Non-Federal Land

Alternative B
Locatable Mineral Withdrawals



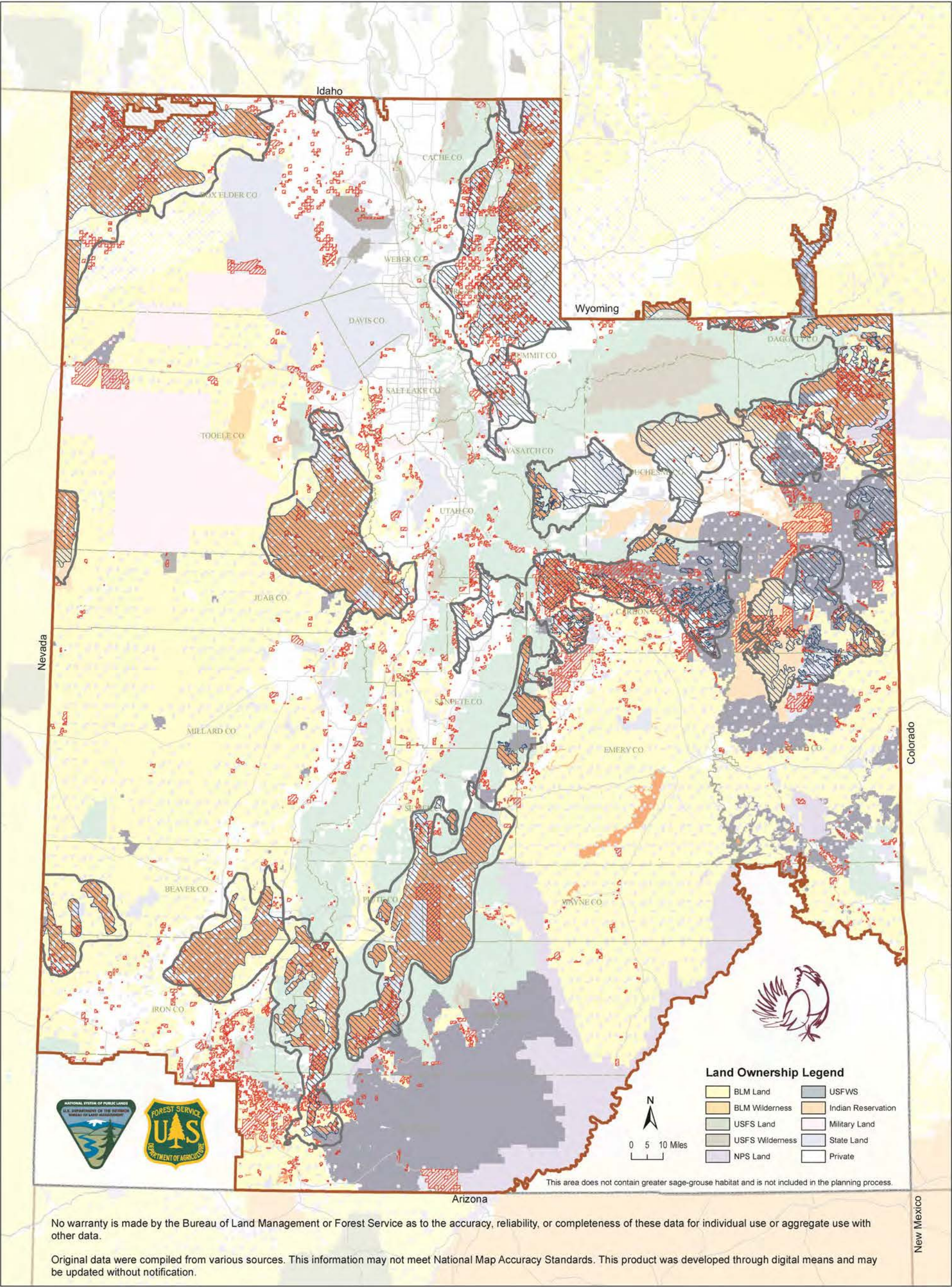
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative B - General
- Alternative B - Priority

Locatable Mineral Withdrawals

- Existing Mineral Withdrawals
- Proposed Mineral Withdrawals
- Federal Mineral Interest on Non-Federal Land

Alternative C
Locatable Mineral Withdrawals



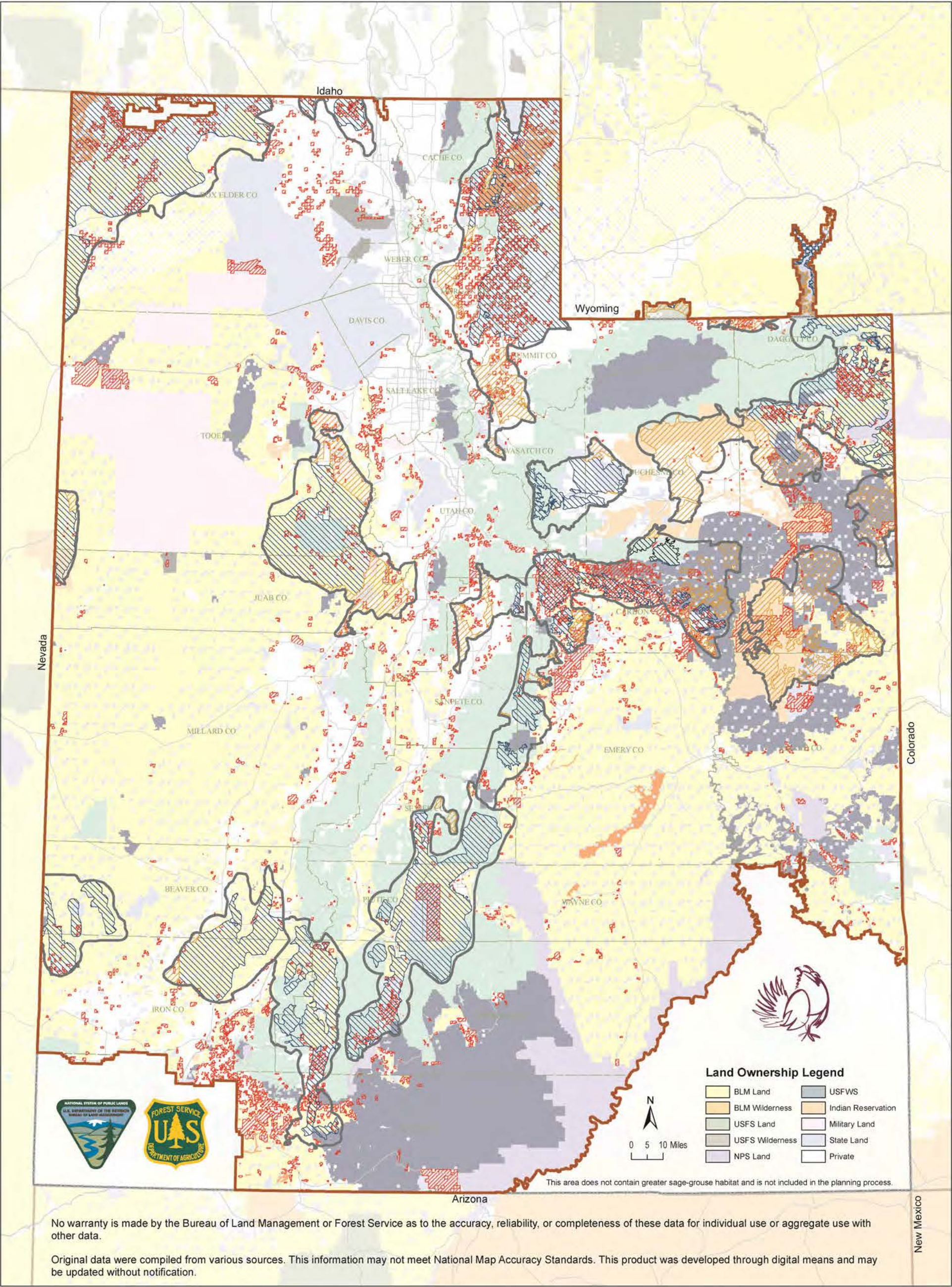
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative C - Priority

Locatable Mineral Withdrawals

- Existing Mineral Withdrawals
- Proposed Mineral Withdrawals
- Federal Mineral Interest on Non-Federal Land

Proposed Plan
Locatable Mineral Withdrawals



Greater Sage-Grouse Areas

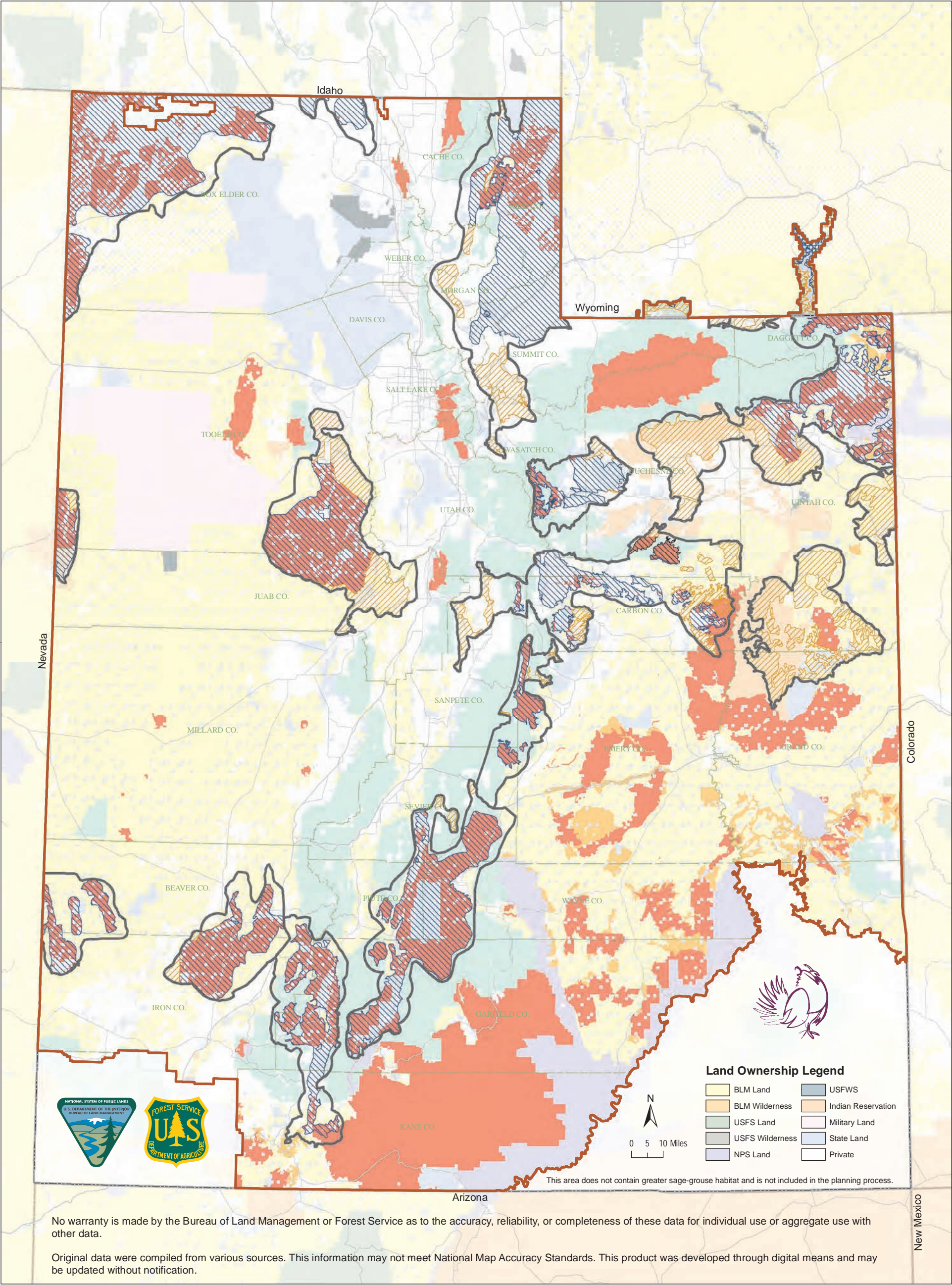
- Utah Sub-Regional Planning Area
- Population Areas
- General Habitat Management Areas
- Priority Habitat Management Areas
- Occupied - Anthro Mountain

Locatable Mineral Withdrawals

- Existing Mineral Withdrawals
- Proposed Mineral Withdrawals
- Federal Mineral Interest on Non-Federal Land

Proposed Plan

Avoidance and Exclusion Areas for Wind Energy



Greater Sage-Grouse Areas

Utah Sub-Regional Planning Area

Population Areas

General Habitat Management Areas

Priority Habitat Management Areas

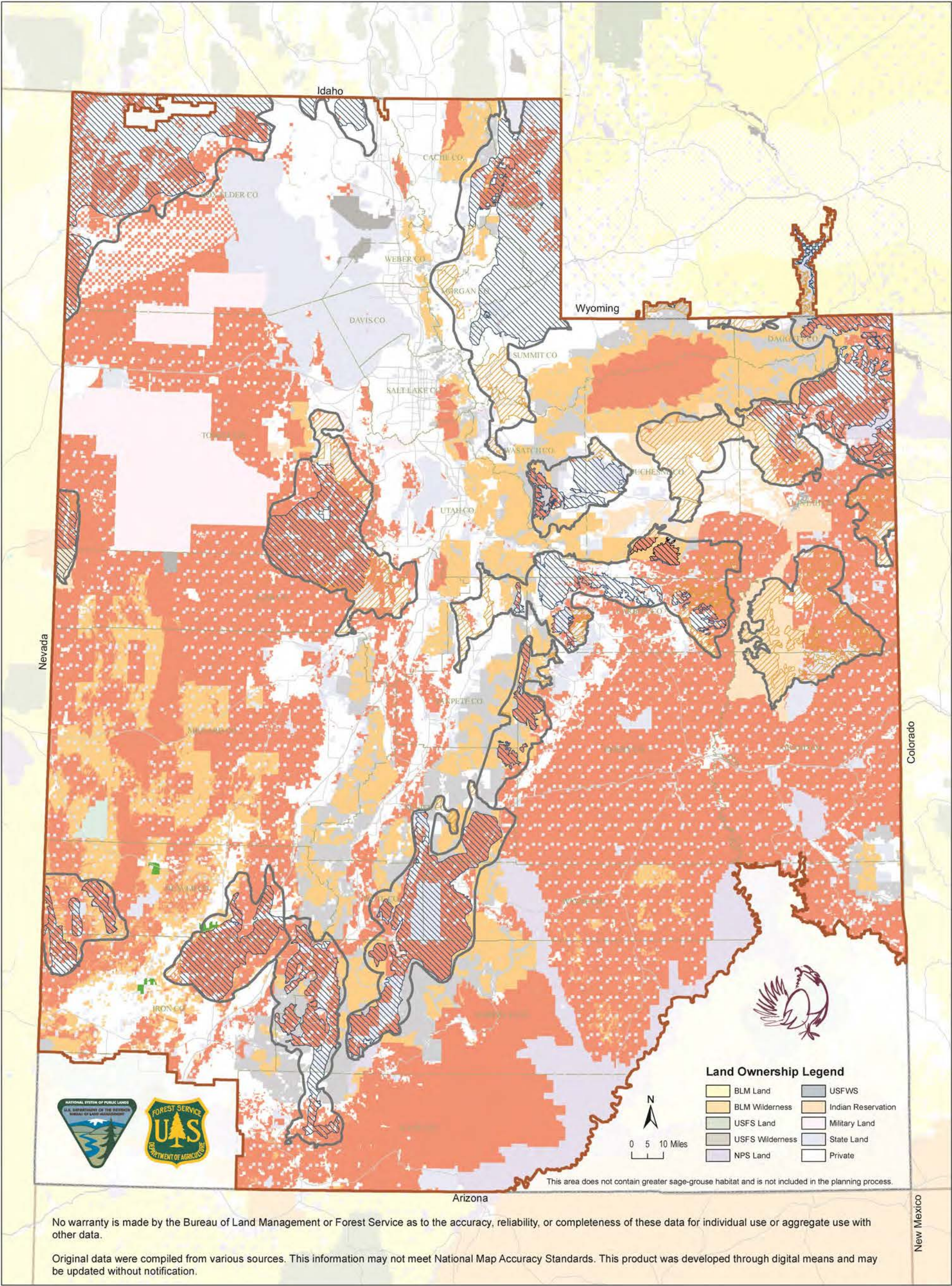
Occupied - Anthro Mountain

Avoidance and Exclusion Areas for Wind Energy

Avoidance Areas

Exclusion Areas

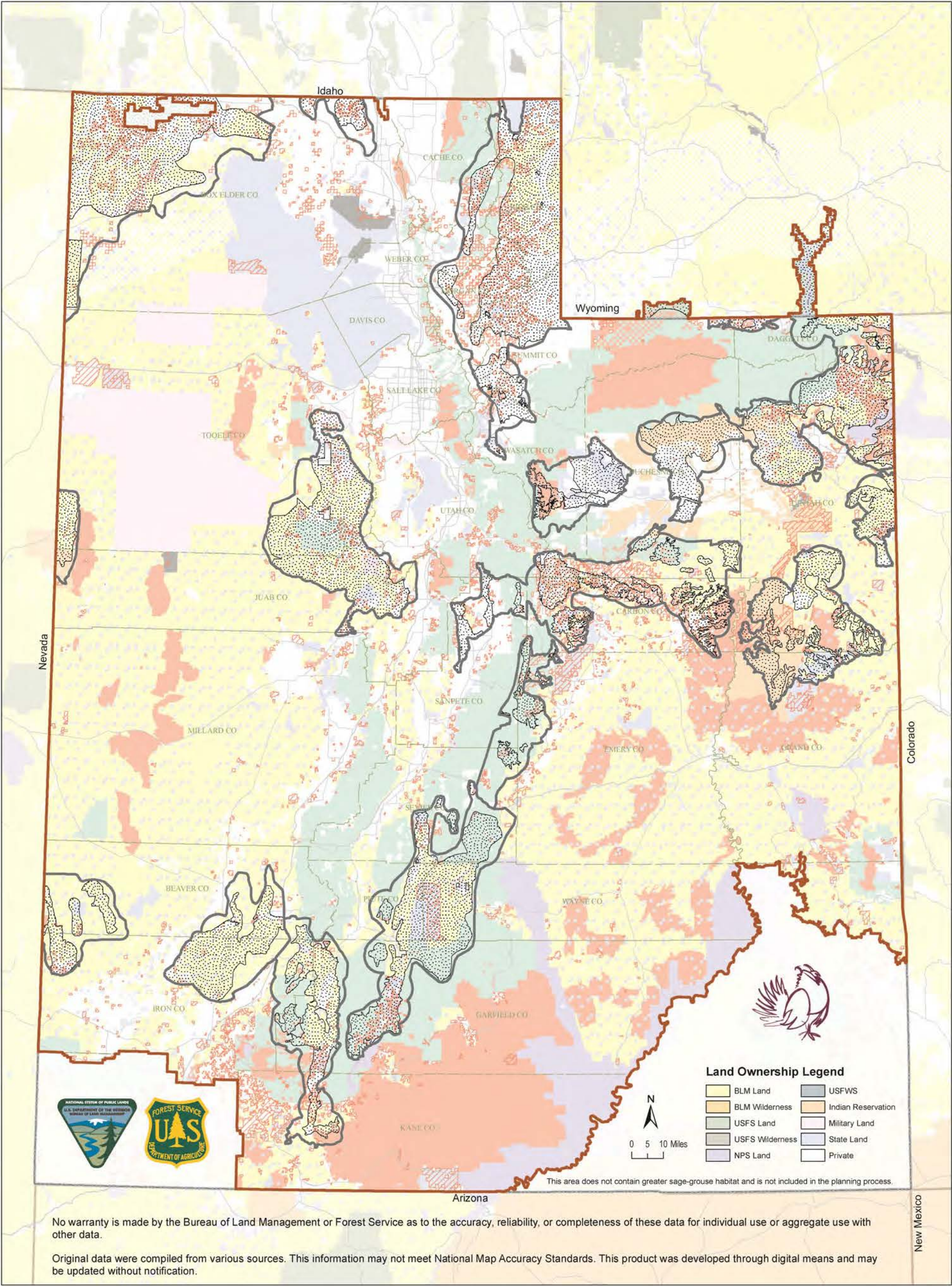
Proposed Plan
Avoidance and Exclusion Areas for Solar Energy



- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Population Areas
 - General Habitat Management Areas
 - Priority Habitat Management Areas
 - Occupied - Anthro Mountain

- Avoidance and Exclusion Areas for Solar Energy**
- Avoidance Areas
 - Exclusion Areas
 - No Decision Areas
 - Open Areas

Alternative A
Non-Energy Solid Leasable Minerals



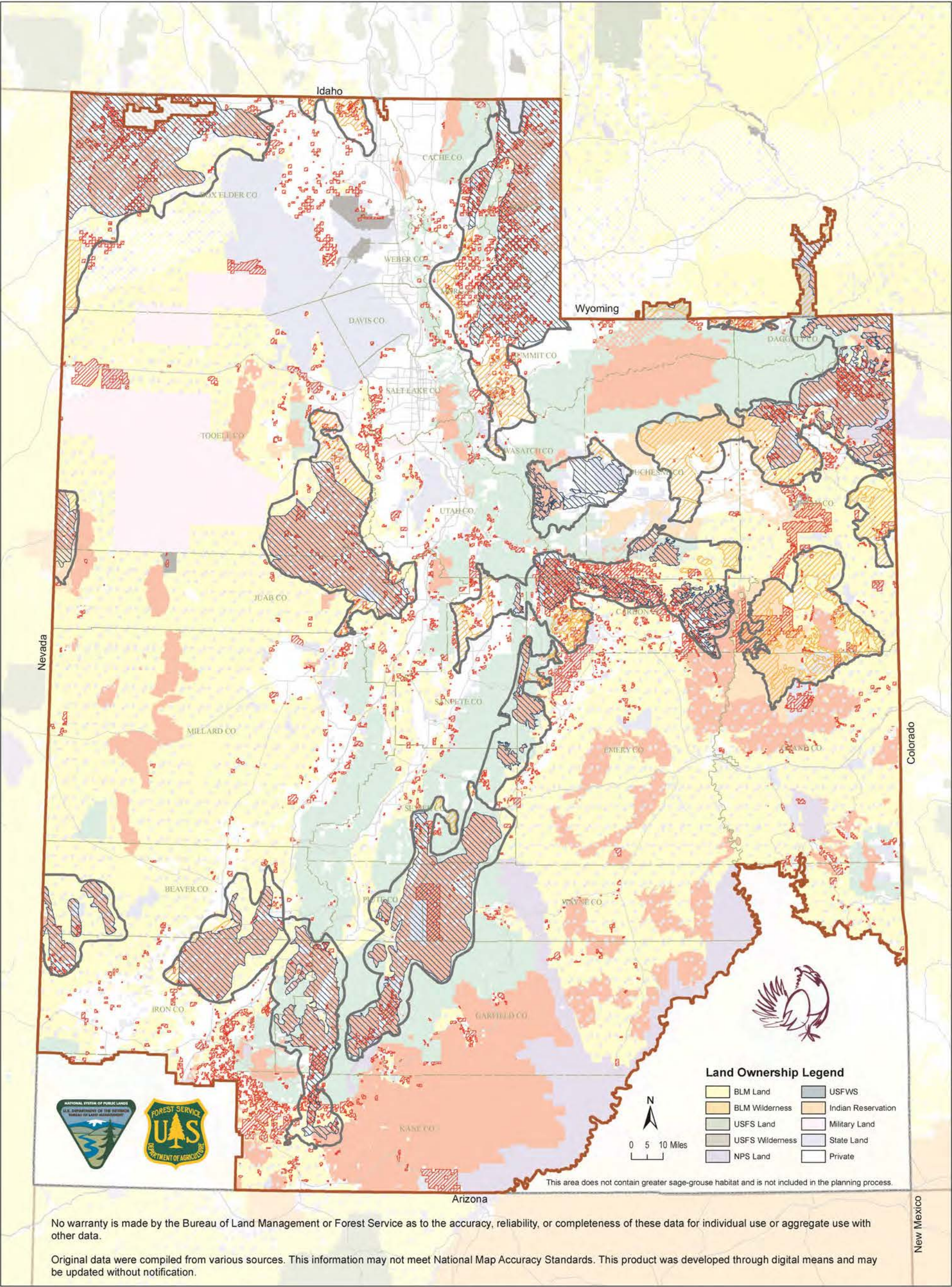
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Non-Energy Solid Leasable Minerals

- Closed
- Federal Mineral Interest on Non-Federal Land

Alternative B
Non-Energy Solid Leasable Minerals



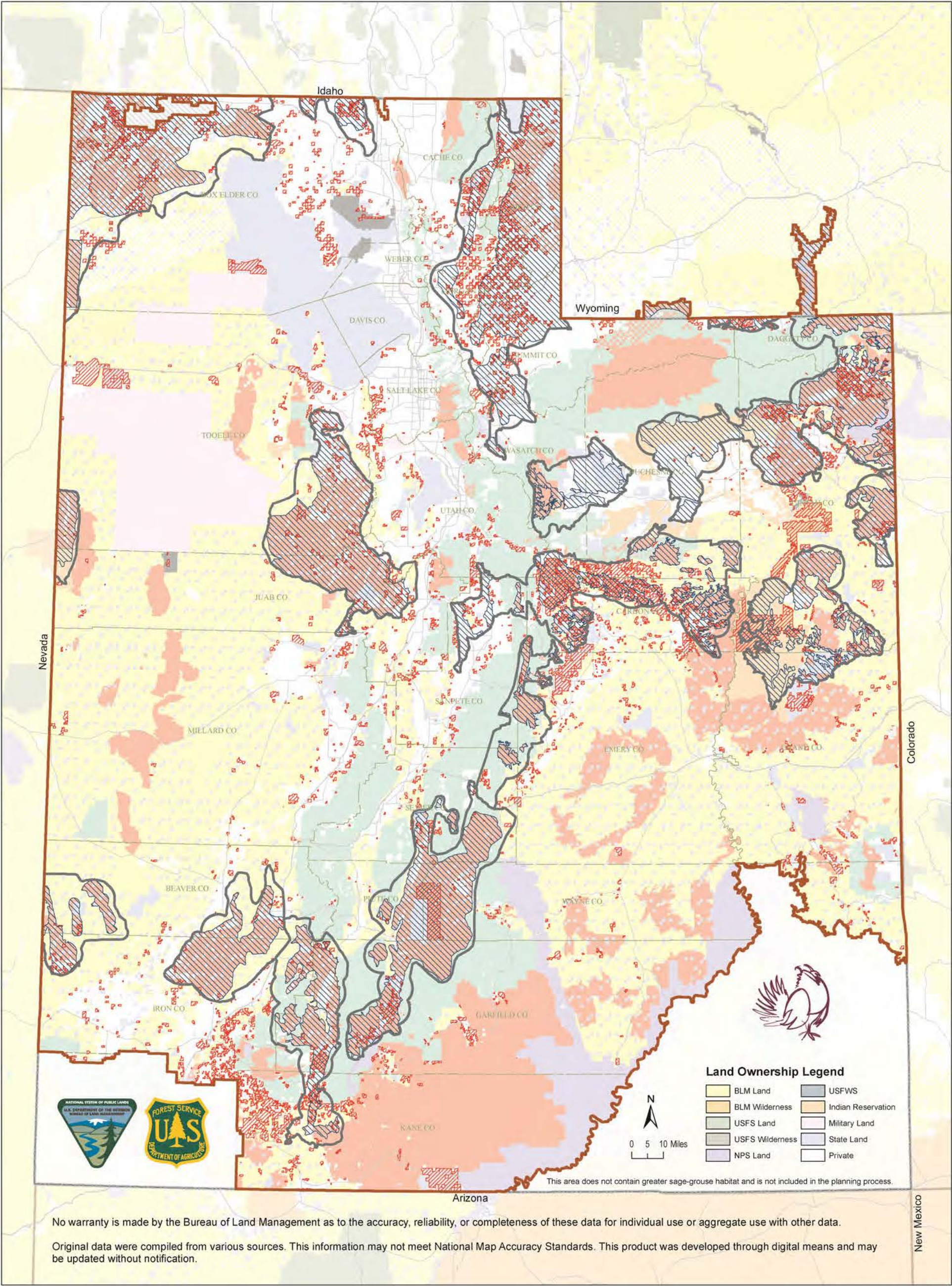
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative B - General
- Alternative B - Priority

Non-Energy Solid Leasable Minerals

- Closed
- Federal Mineral Interest on Non-Federal Land

Alternative C
Non-Energy Solid Leasable Minerals



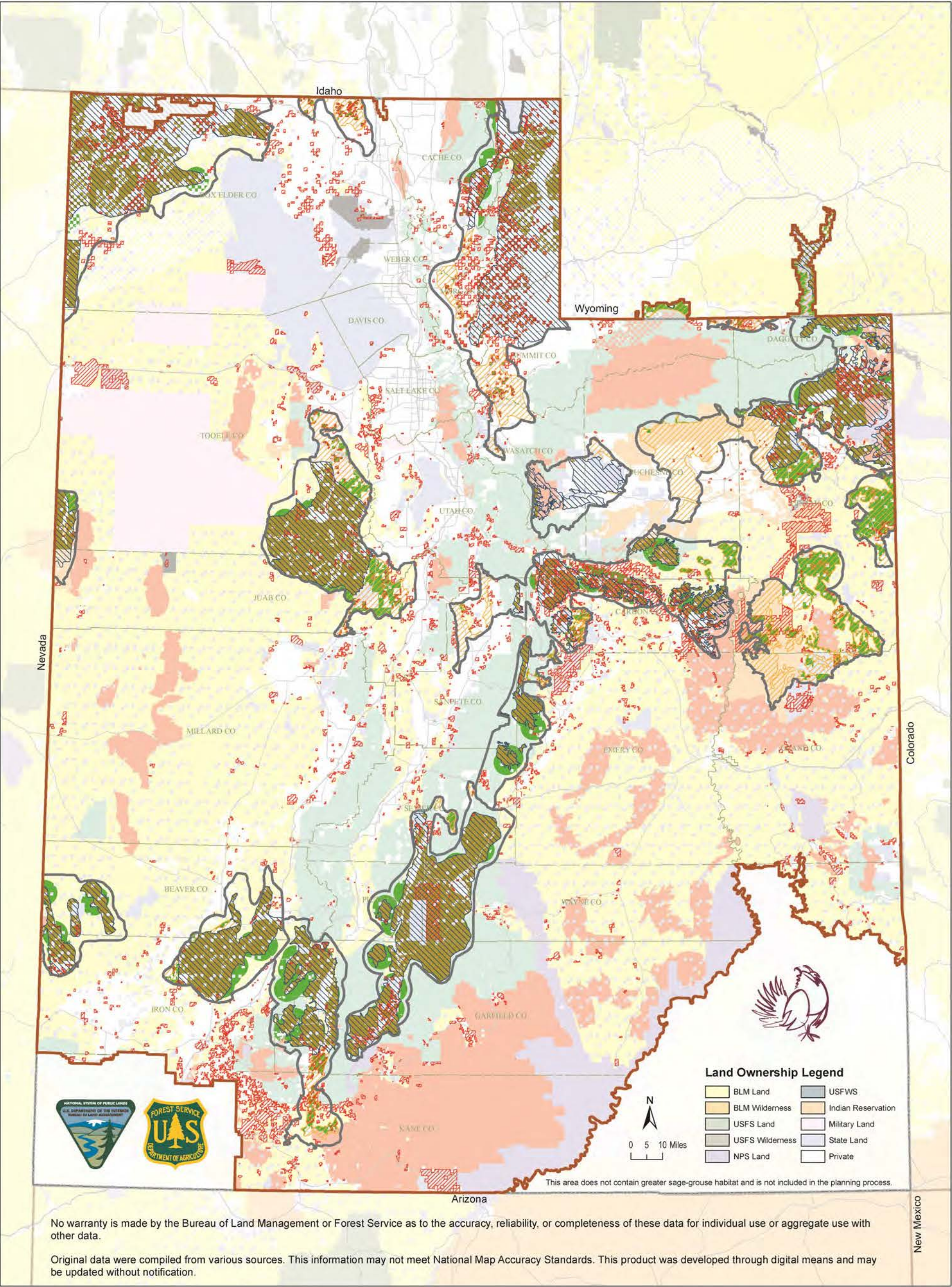
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative C - Priority

Non-Energy Solid Leasable Minerals

- Closed
- Federal Mineral Interest on Non-Federal Land

Alternative D
Non-Energy Solid Leasable Minerals



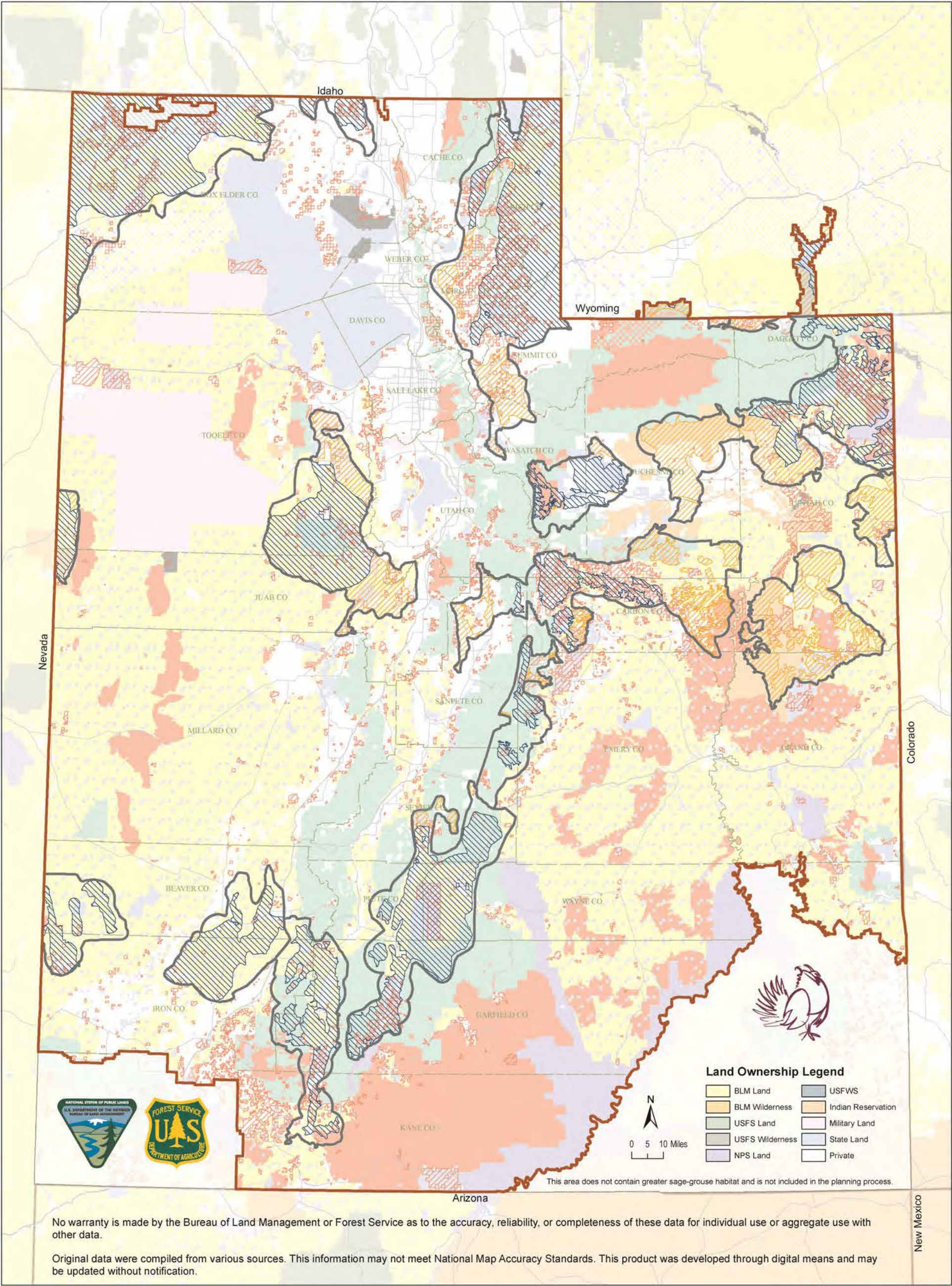
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative D - General
- Alternative D - Priority

Non-Energy Solid Leasable Minerals

- Open
- Closed
- Closed to Leasing Associated with Surface Mining
- Federal Mineral Interest on Non-Federal Land

Alternative E
Non-Energy Solid Leasable Minerals



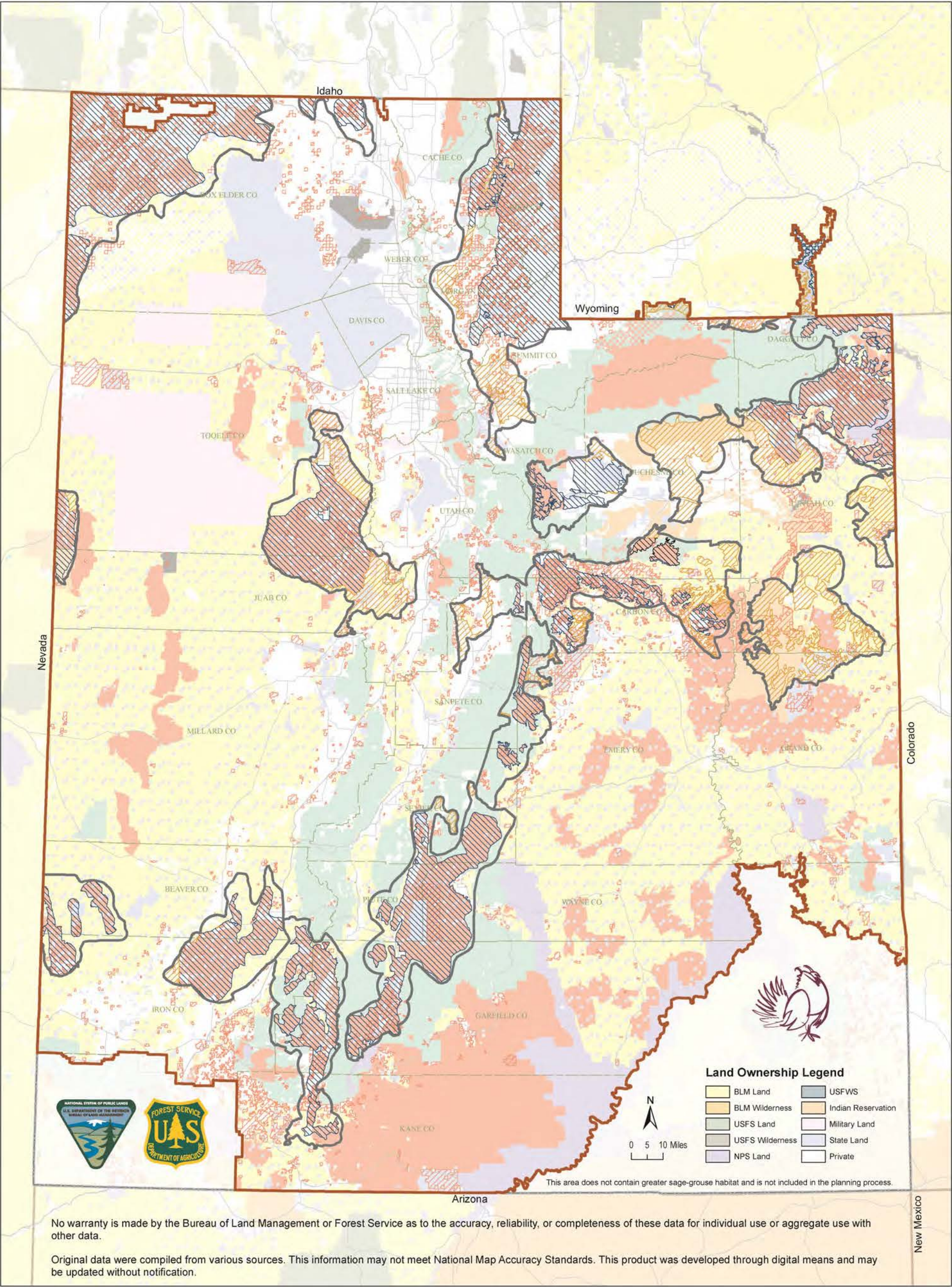
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative E - Habitat Outside SGMAs
- Alternative E - Habitat Inside SGMAs

Non-Energy Solid Leasable Minerals

- Closed
- Federal Mineral Interest on Non-Federal Land

Proposed Plan
Non-Energy Solid Leasable Minerals



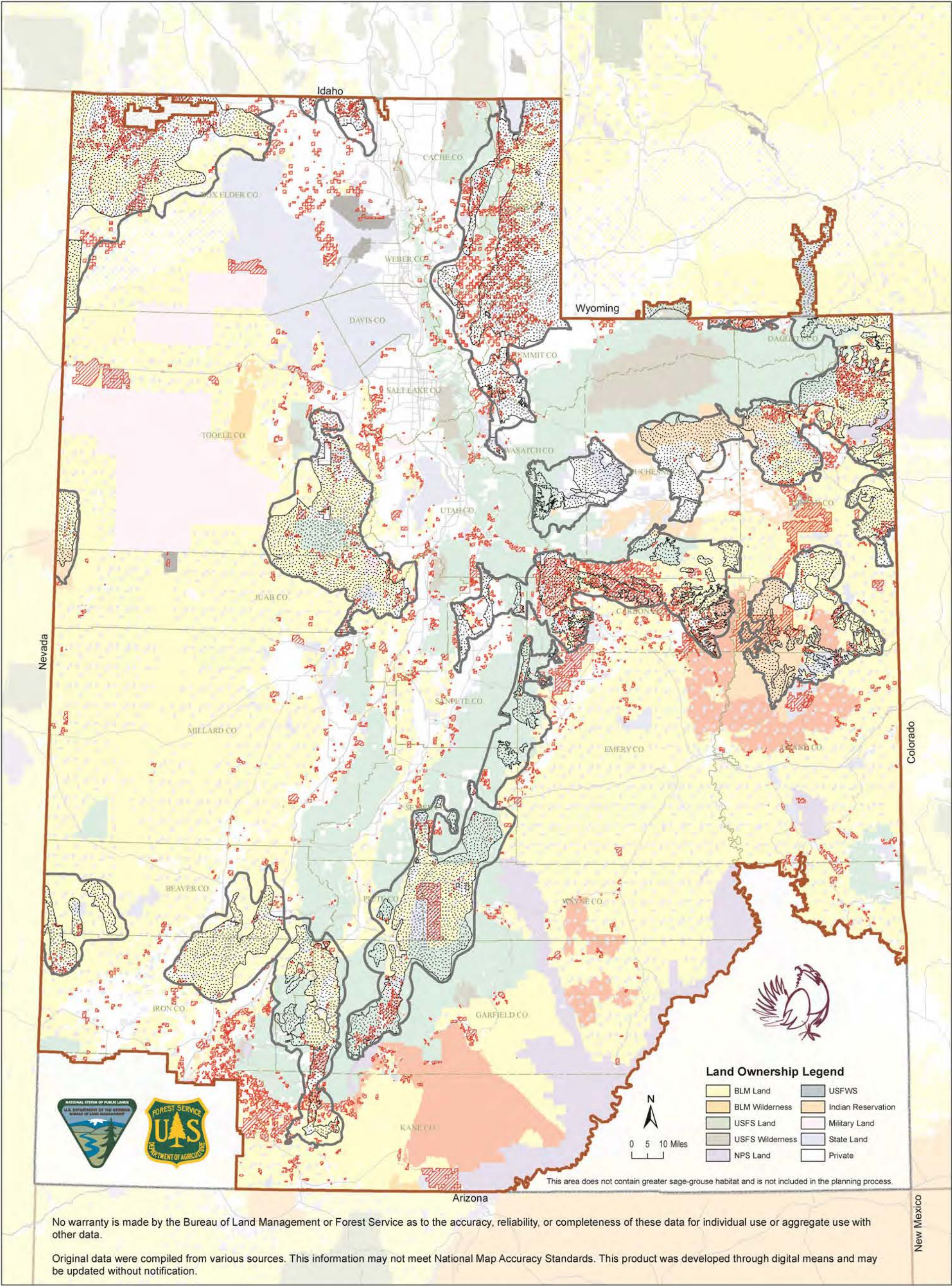
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- General Habitat Management Areas
- Priority Habitat Management Areas
- Occupied - Anthro Mountain

Non-Energy Solid Leasable Minerals

- Closed
- Federal Mineral Interest on Non-Federal Land

Alternative A
Coal Suitability for Surface Mining



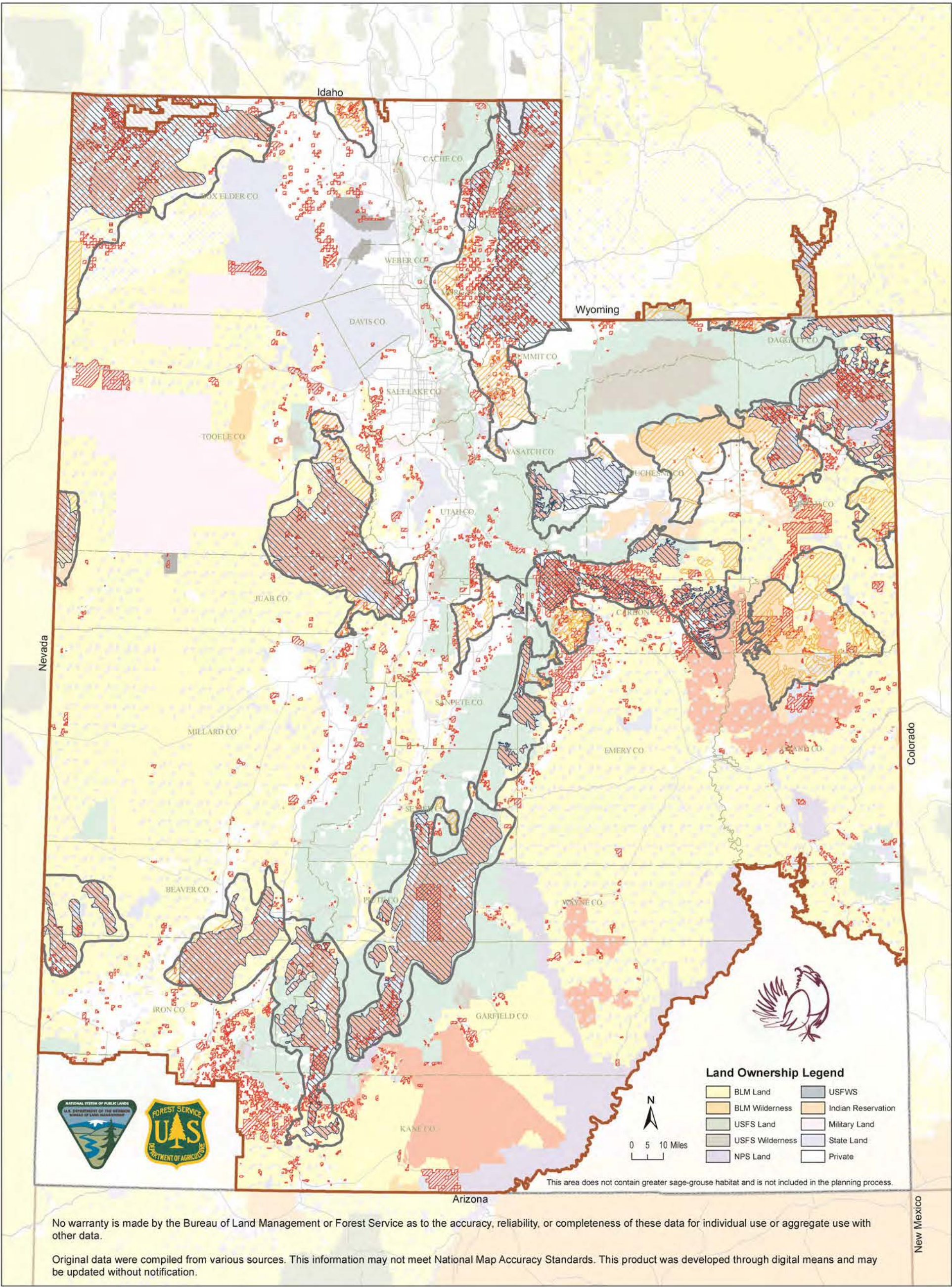
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Coal Suitability for Surface Mining

- Unsuitable or No Potential for Surface Mining
- Federal Mineral Interest on Non-Federal Land

Alternative B
Coal Suitability for Surface Mining



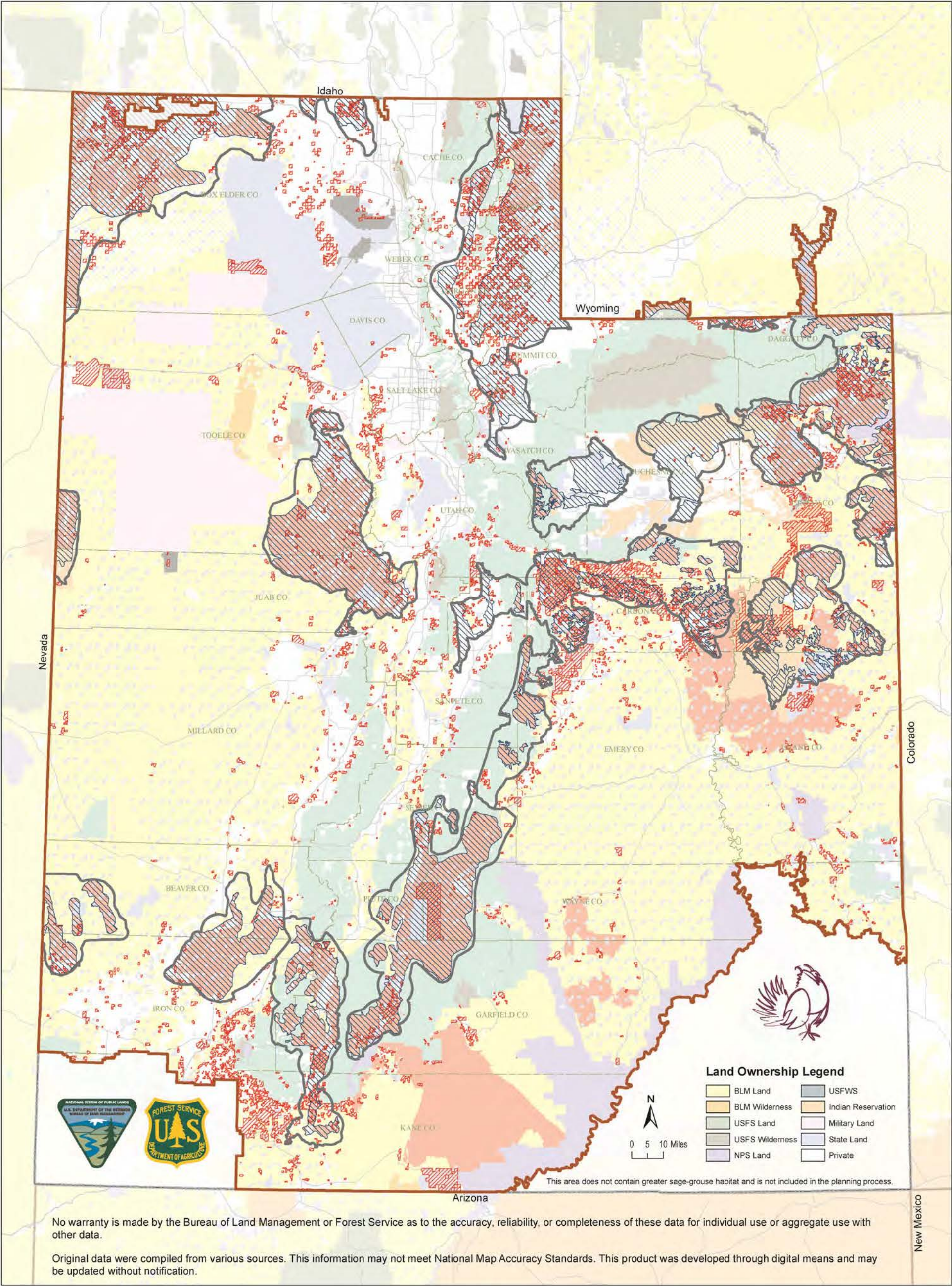
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative B - General
- Alternative B - Priority

Coal Suitability for Surface Mining

- Unsuitable or No Potential for Surface Mining
- Federal Mineral Interest on Non-Federal Land

Alternative C
Coal Suitability for Surface Mining



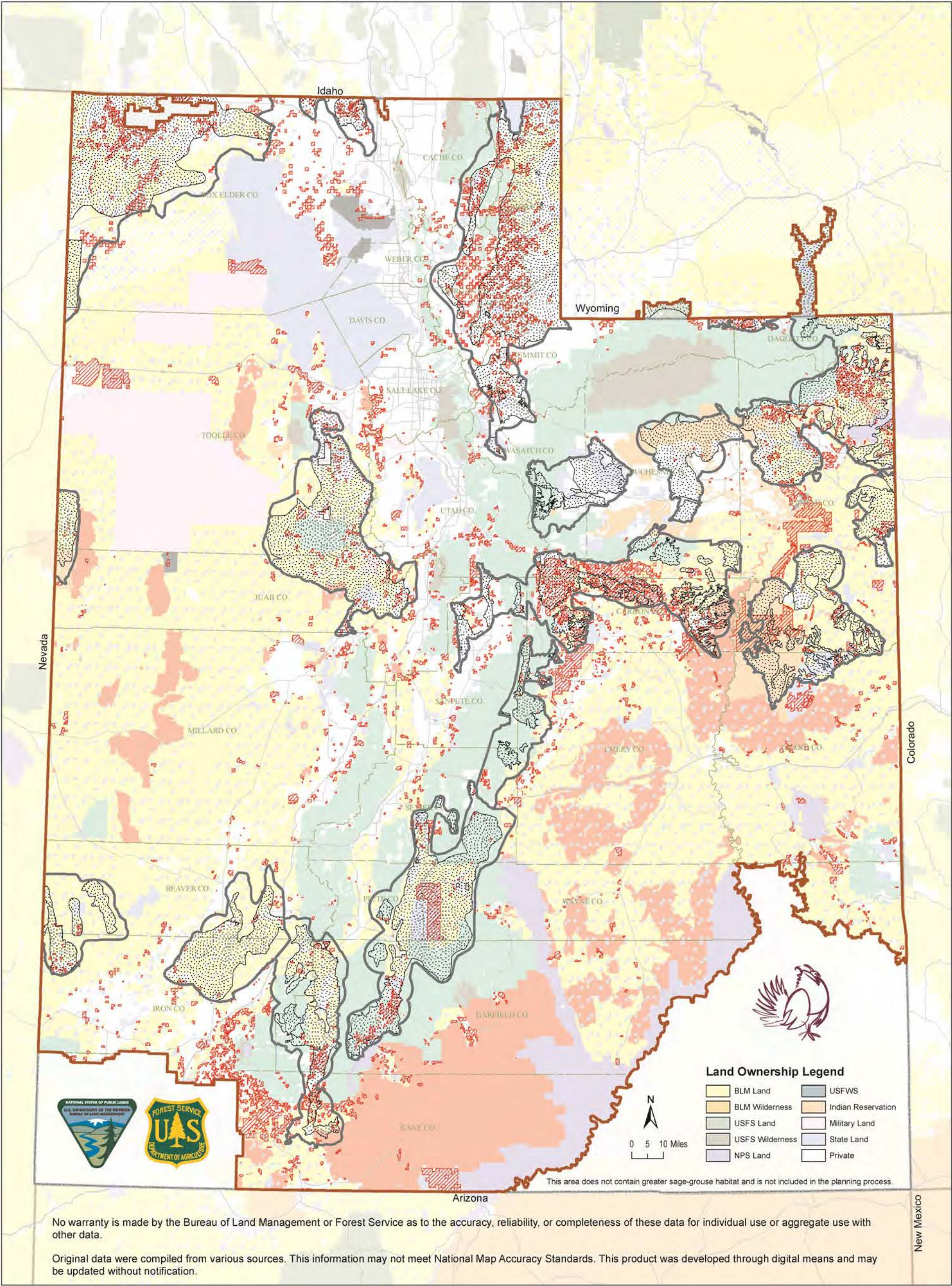
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative C - Priority

Coal Suitability for Surface Mining

- Unsuitable for Surface Mining
- Federal Mineral Interest on Non-Federal Land

Alternative A
Saleable Mineral Materials



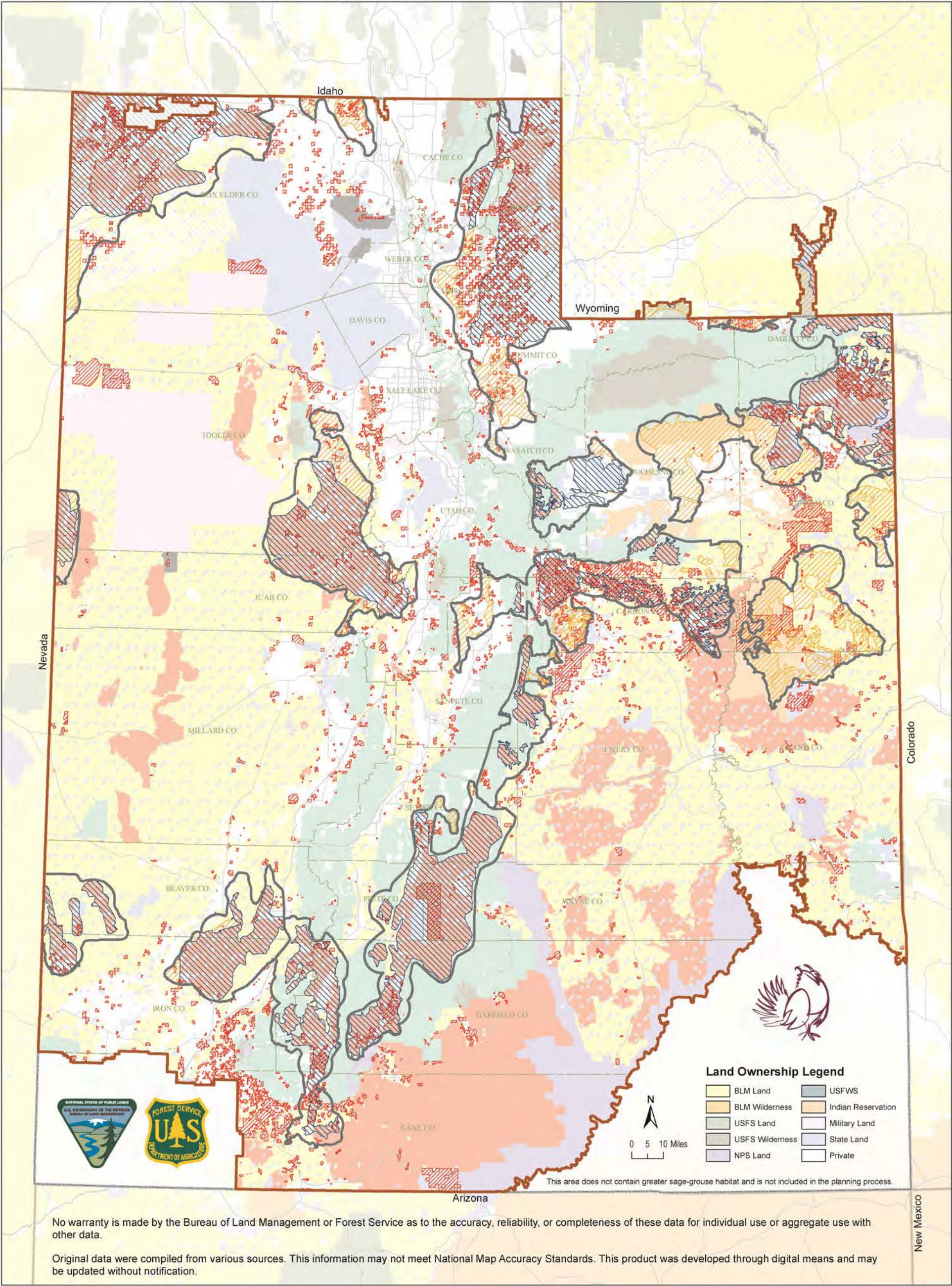
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Saleable Mineral Materials

- Closed
- Federal Mineral Interest on Non-Federal Land

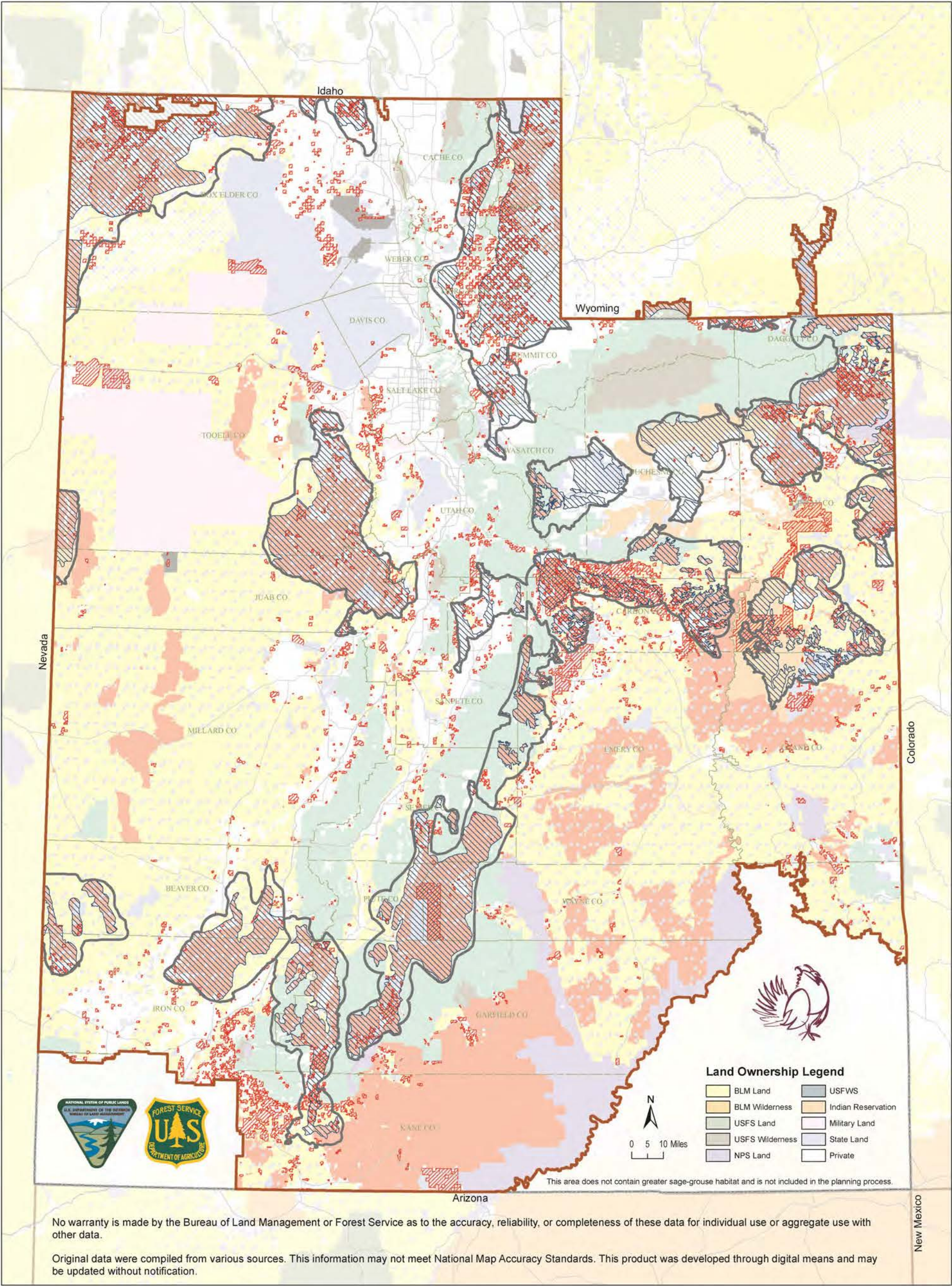
Alternative B
Saleable Mineral Materials



- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Population Areas
 - Alternative B - General
 - Alternative B - Priority

- Saleable Mineral Materials**
- Closed
 - Federal Mineral Interest on Non-Federal Land

Alternative C
Saleable Mineral Materials



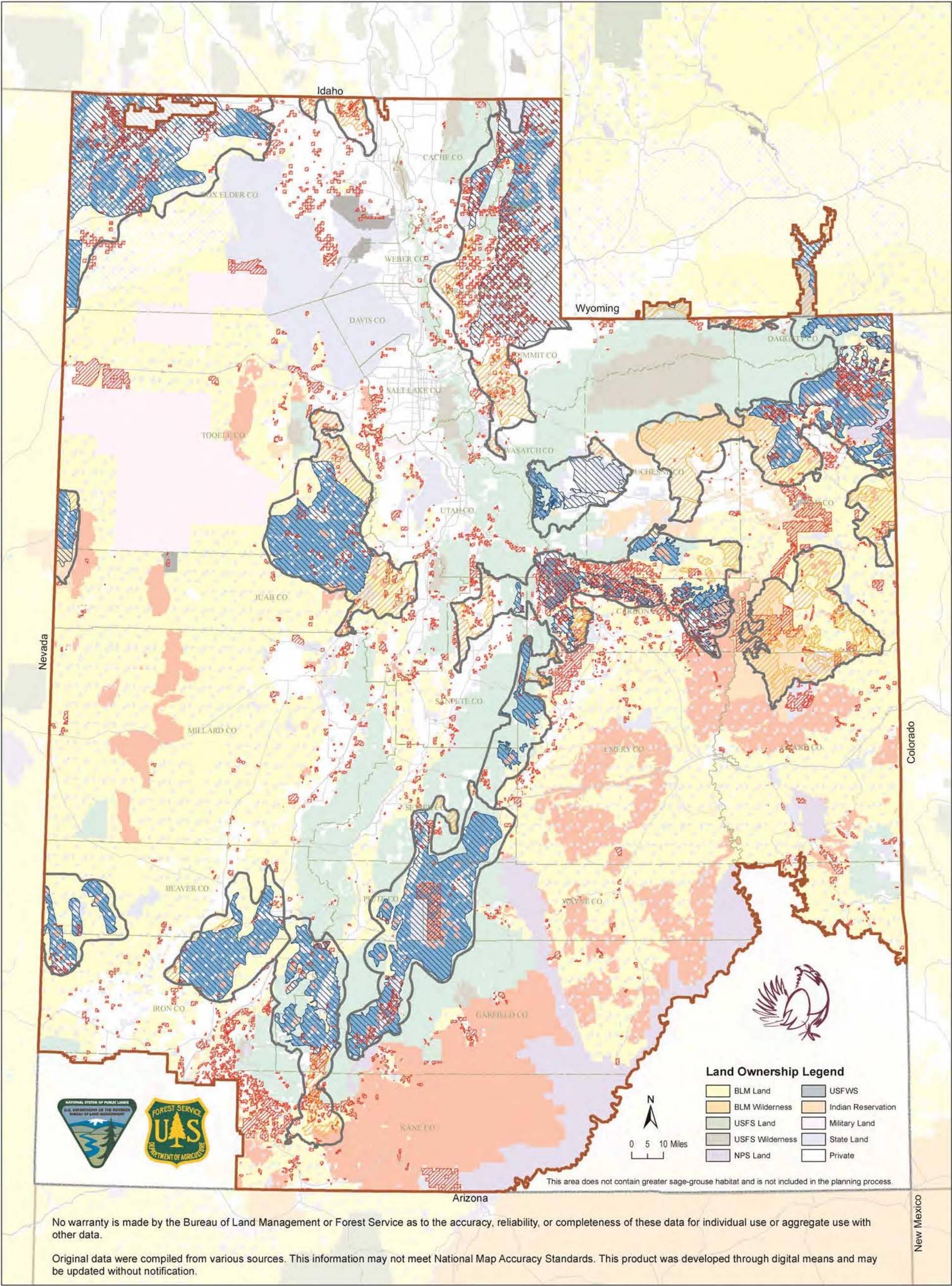
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative C - Priority

Saleable Mineral Materials

- Closed
- Federal Mineral Interest on Non-Federal Land

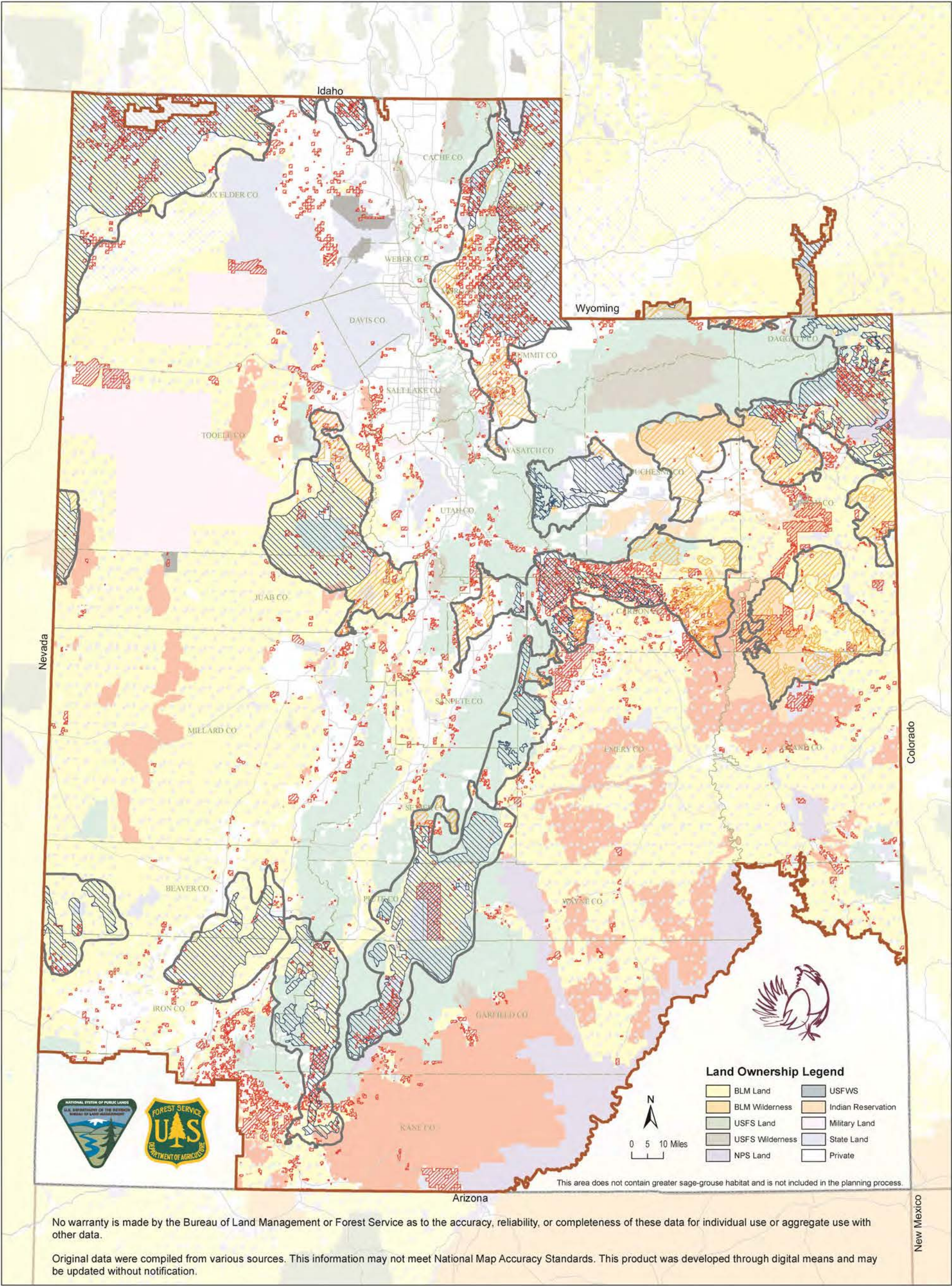
Alternative D
Saleable Mineral Materials



- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Population Areas
 - Alternative D - General
 - Alternative D - Priority

- Saleable Mineral Materials**
- Closed to Commercial
 - Closed
 - Federal Mineral Interest on Non-Federal Land

Alternative E
Saleable Mineral Materials



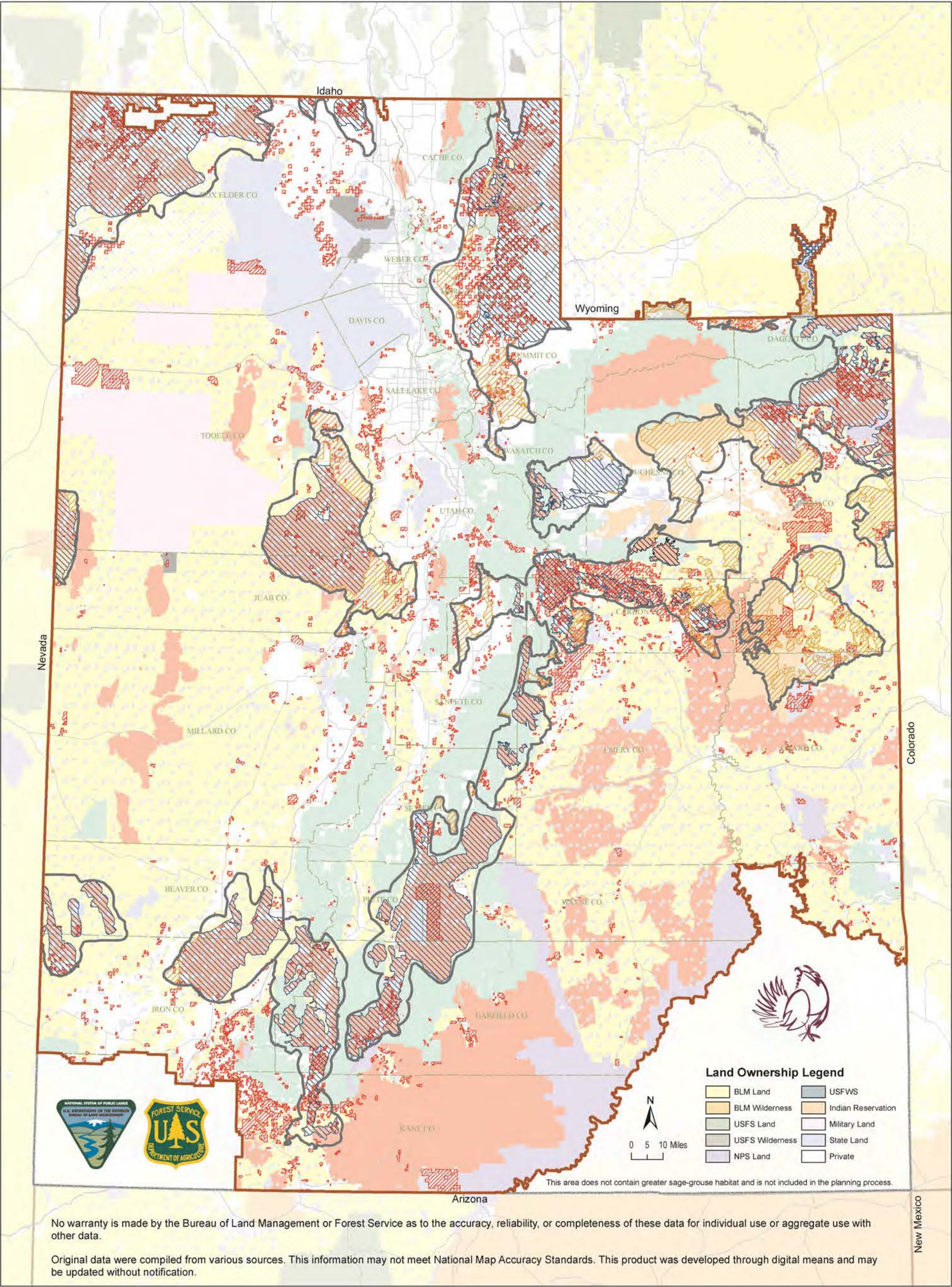
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative E - Habitat Outside SGMAs
- Alternative E - Habitat Inside SGMAs

Saleable Mineral Materials

- Closed
- Federal Mineral Interest on Non-Federal Land

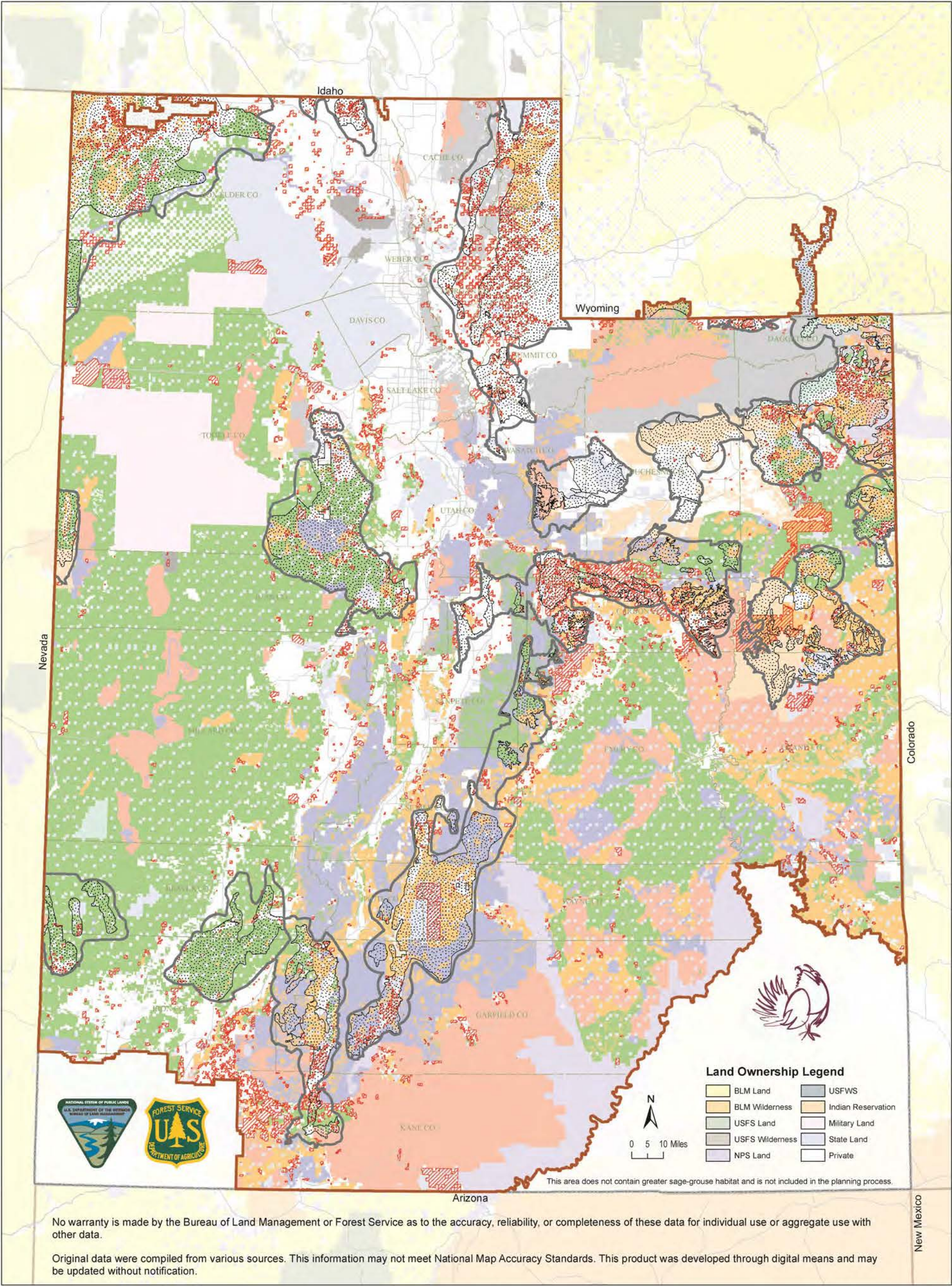
Proposed Plan
Saleable Mineral Materials



- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Population Areas
 - General Habitat Management Areas
 - Priority Habitat Management Areas
 - Occupied - Anthro Mountain

- Saleable Mineral Materials**
- Closed
 - Federal Mineral Interest on Non-Federal Land

Alternative A
Fluid Mineral Leasing Categories



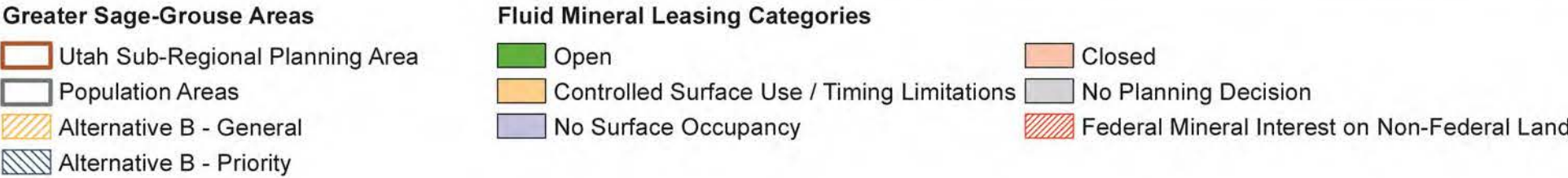
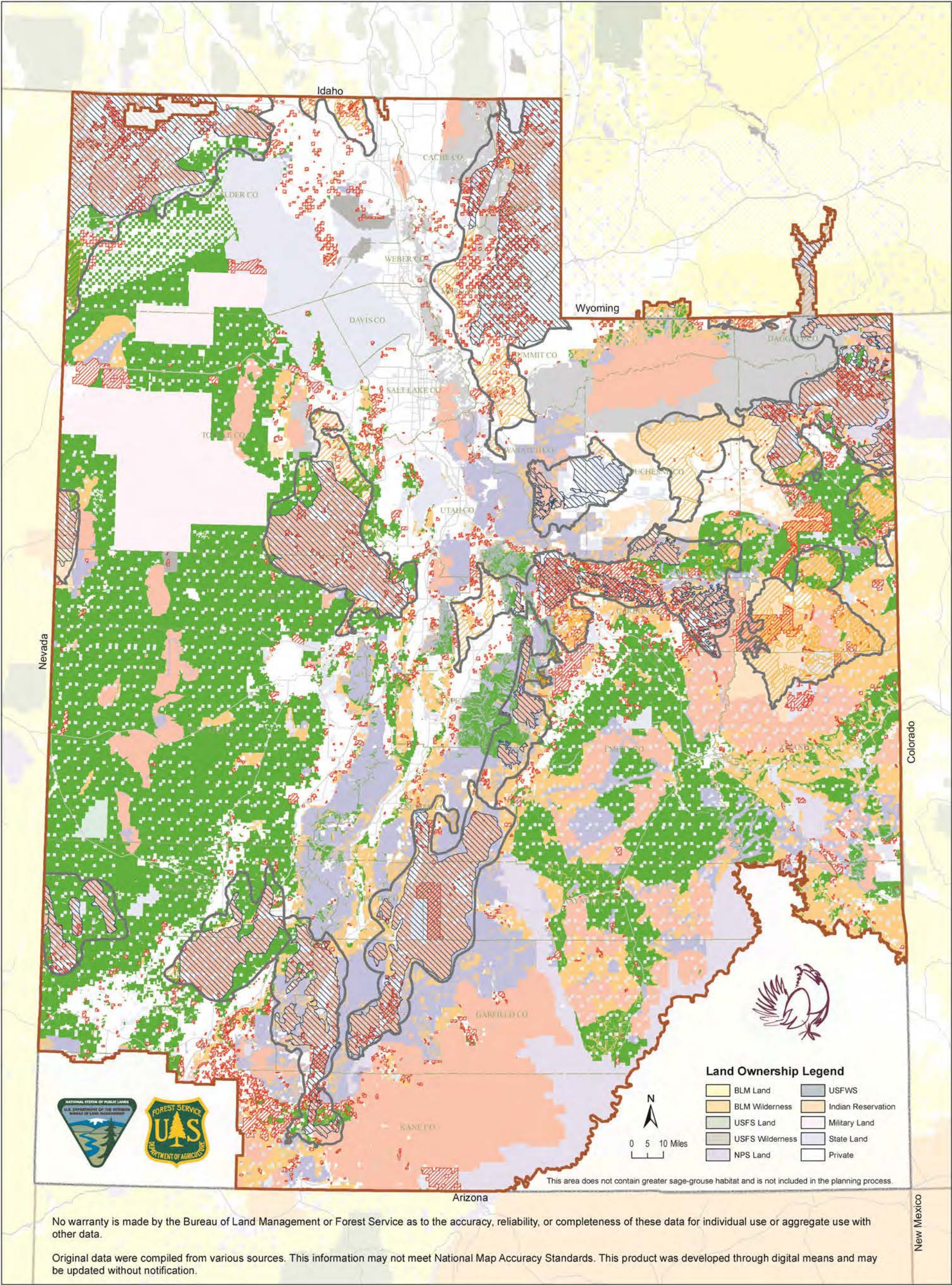
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

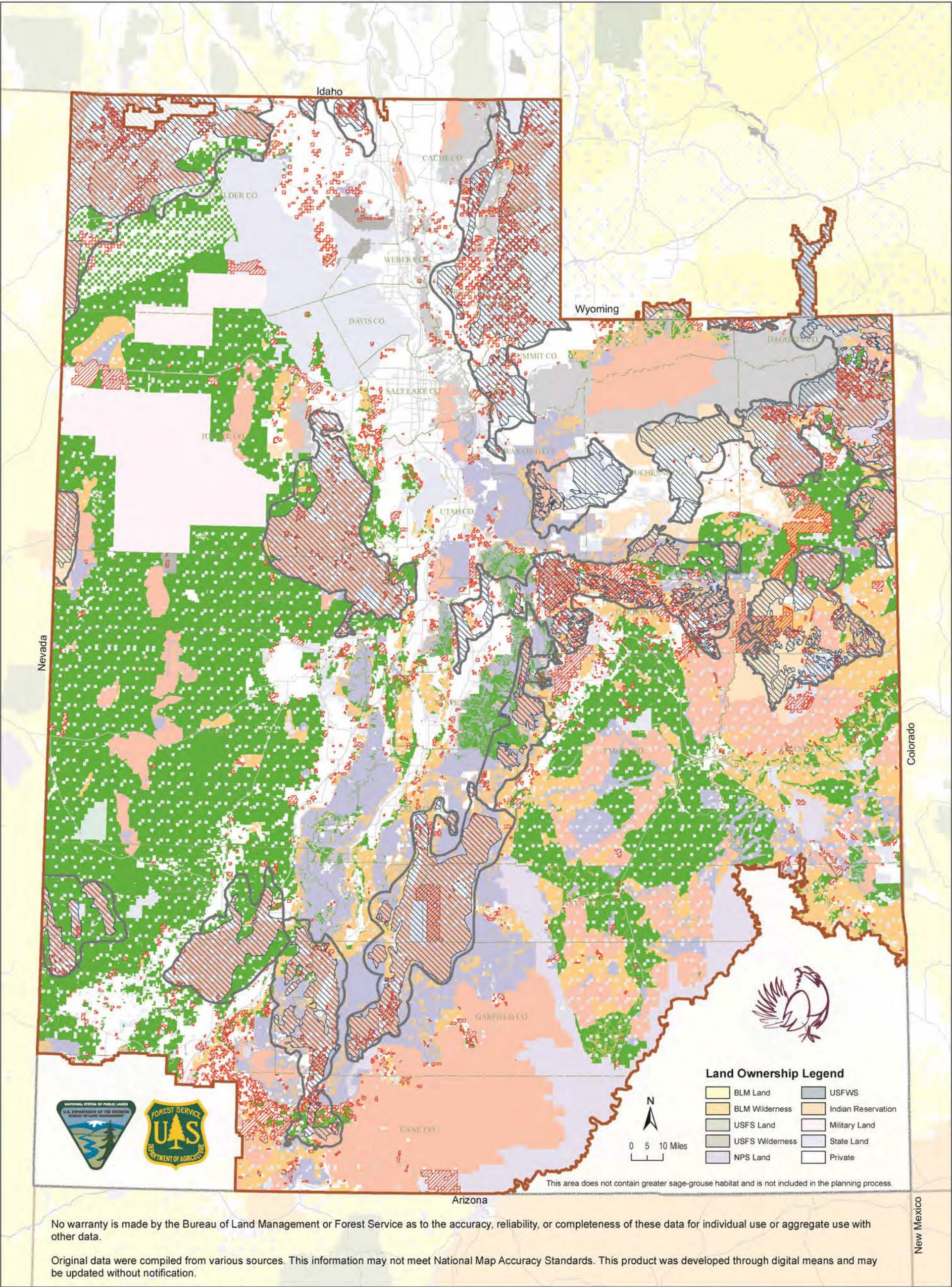
Fluid Mineral Leasing Categories

- Open
- Controlled Surface Use / Timing Limitations
- No Surface Occupancy
- Closed
- No Planning Decision
- Federal Mineral Interest on Non-Federal Land

Alternative B
Fluid Mineral Leasing Categories



Alternative C
Fluid Mineral Leasing Categories



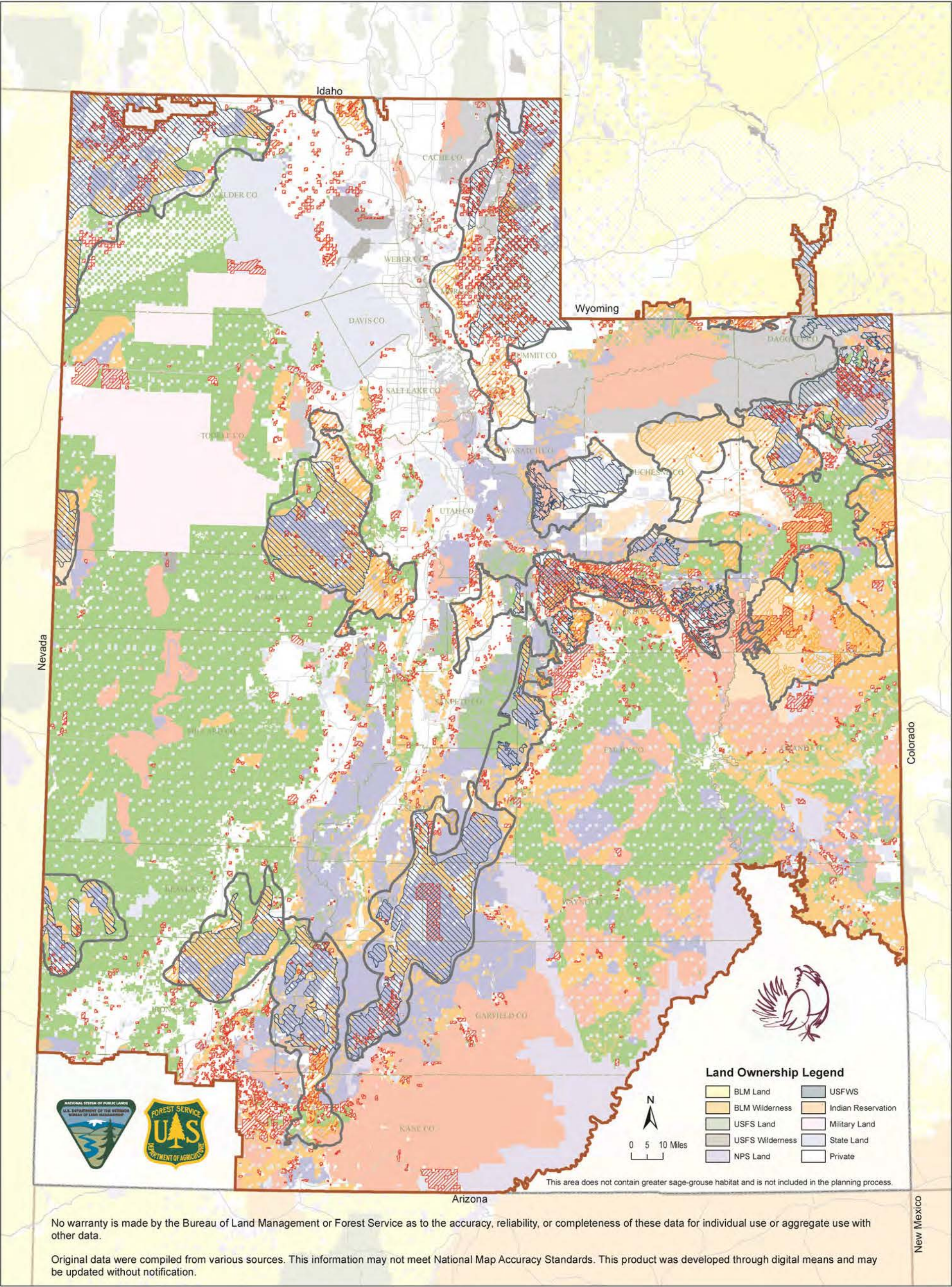
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative C - Priority

Fluid Mineral Leasing Categories

- Open
- Controlled Surface Use / Timing Limitations
- No Surface Occupancy
- Closed
- No Planning Decision
- Federal Mineral Interest on Non-Federal Land

Alternative D
Fluid Mineral Leasing Categories



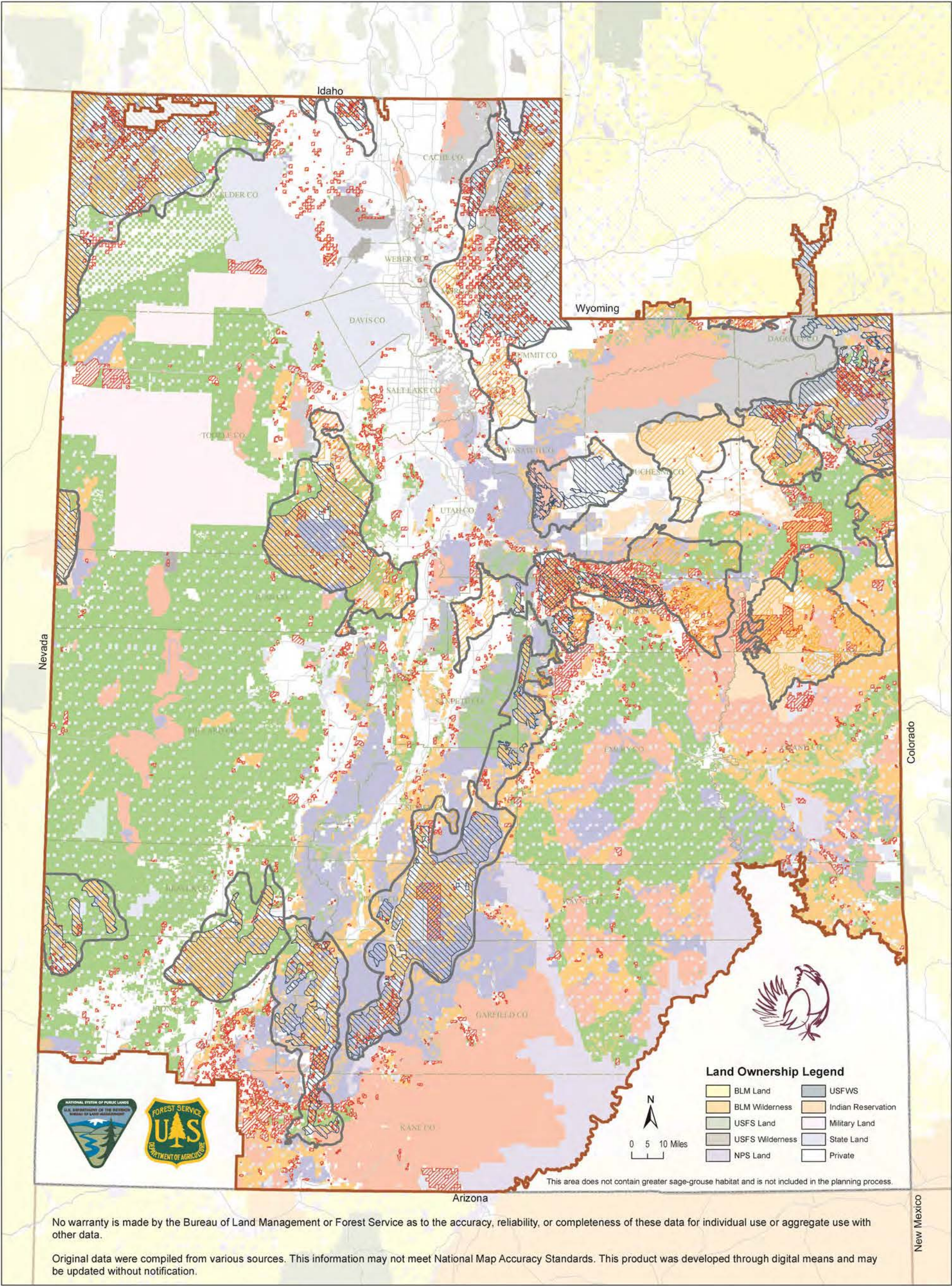
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative D - General
- Alternative D - Priority

Fluid Mineral Leasing Categories

- Open
- Controlled Surface Use / Timing Limitations
- No Surface Occupancy
- Closed
- No Planning Decision
- Federal Mineral Interest on Non-Federal Land

Alternative E
Fluid Mineral Leasing Categories



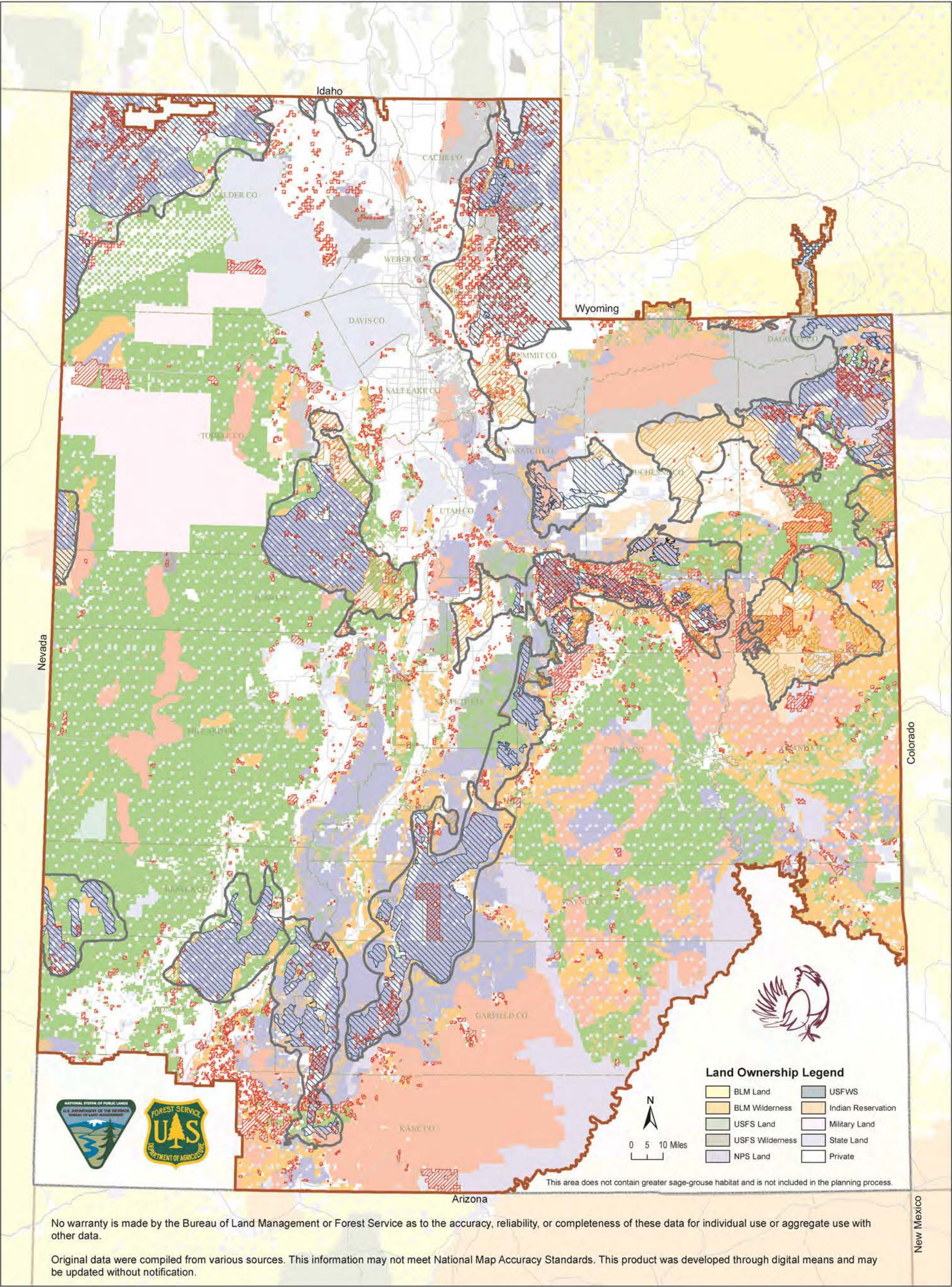
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative E - Habitat Outside SGMA
- Alternative E - Habitat Inside SGMA

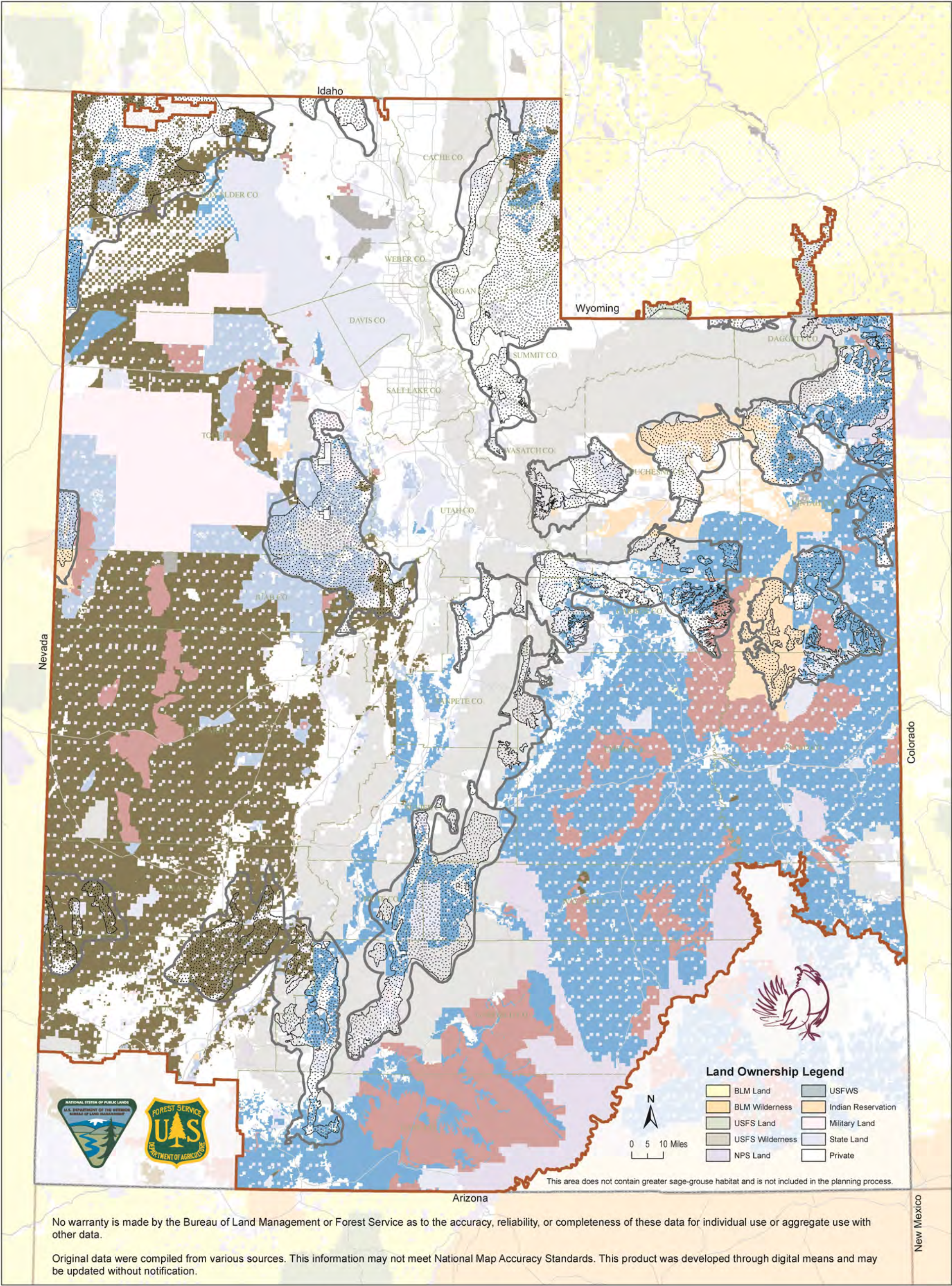
Fluid Mineral Leasing Categories

- Open
- Controlled Surface Use / Timing Limitations
- No Surface Occupancy
- Closed
- No Planning Decision
- Federal Mineral Interest on Non-Federal Land

Proposed Plan
Fluid Mineral Leasing Categories



Alternative A
OHV Area Designations

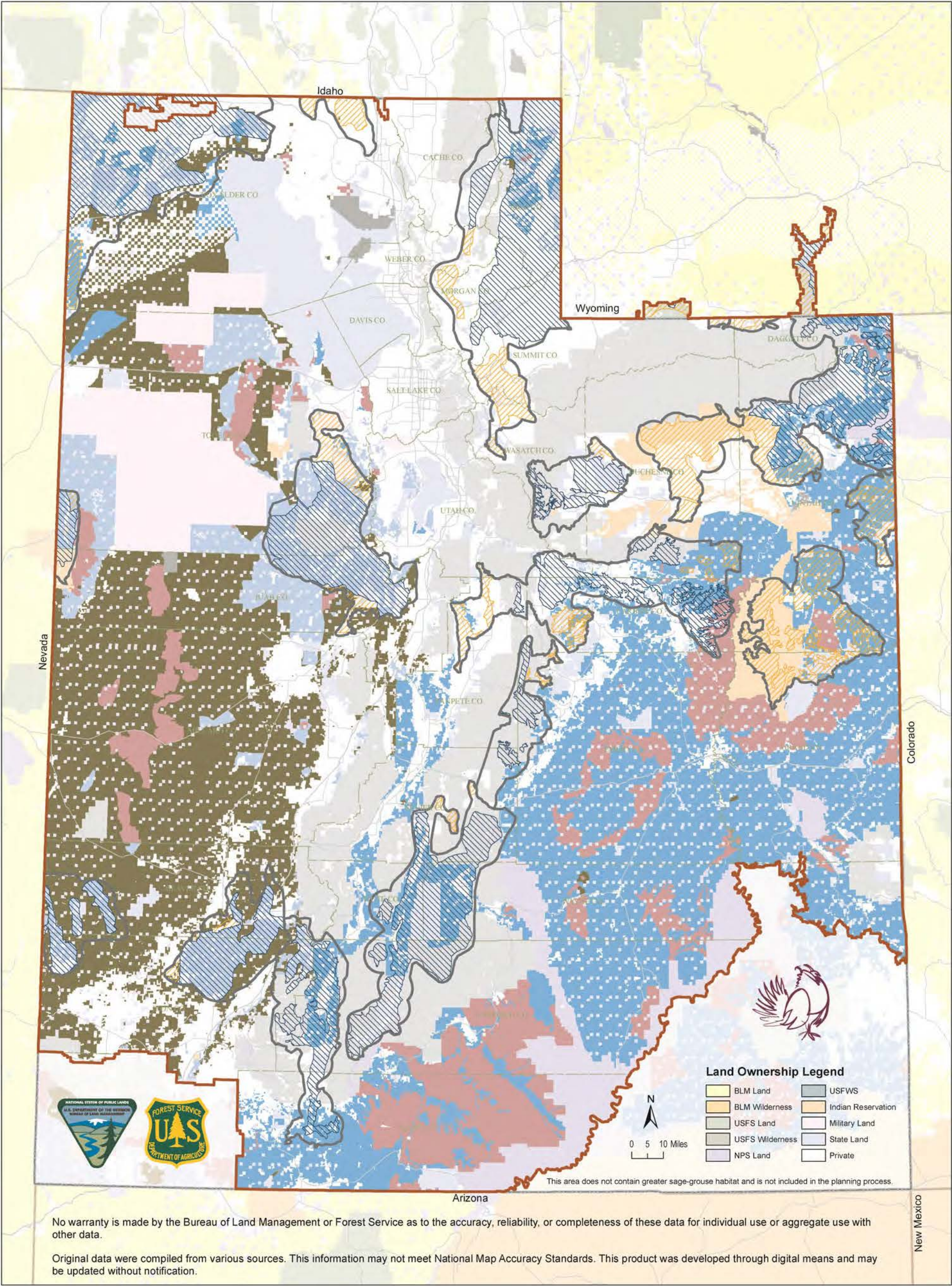


- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Population Areas
 - Occupied Habitat

- OHV Area Designations**
- Open
 - Limited to Designated Routes
 - Limited to Existing Routes
 - Closed
 - National Forest System Lands - See Note

Note:
Forest Service lands do not have similar OHV management categories. OHV use on National Forest Lands within the planning area is limited to roads, trails, and areas that have been designated through a transportation planning process.

Alternative B
OHV Area Designations

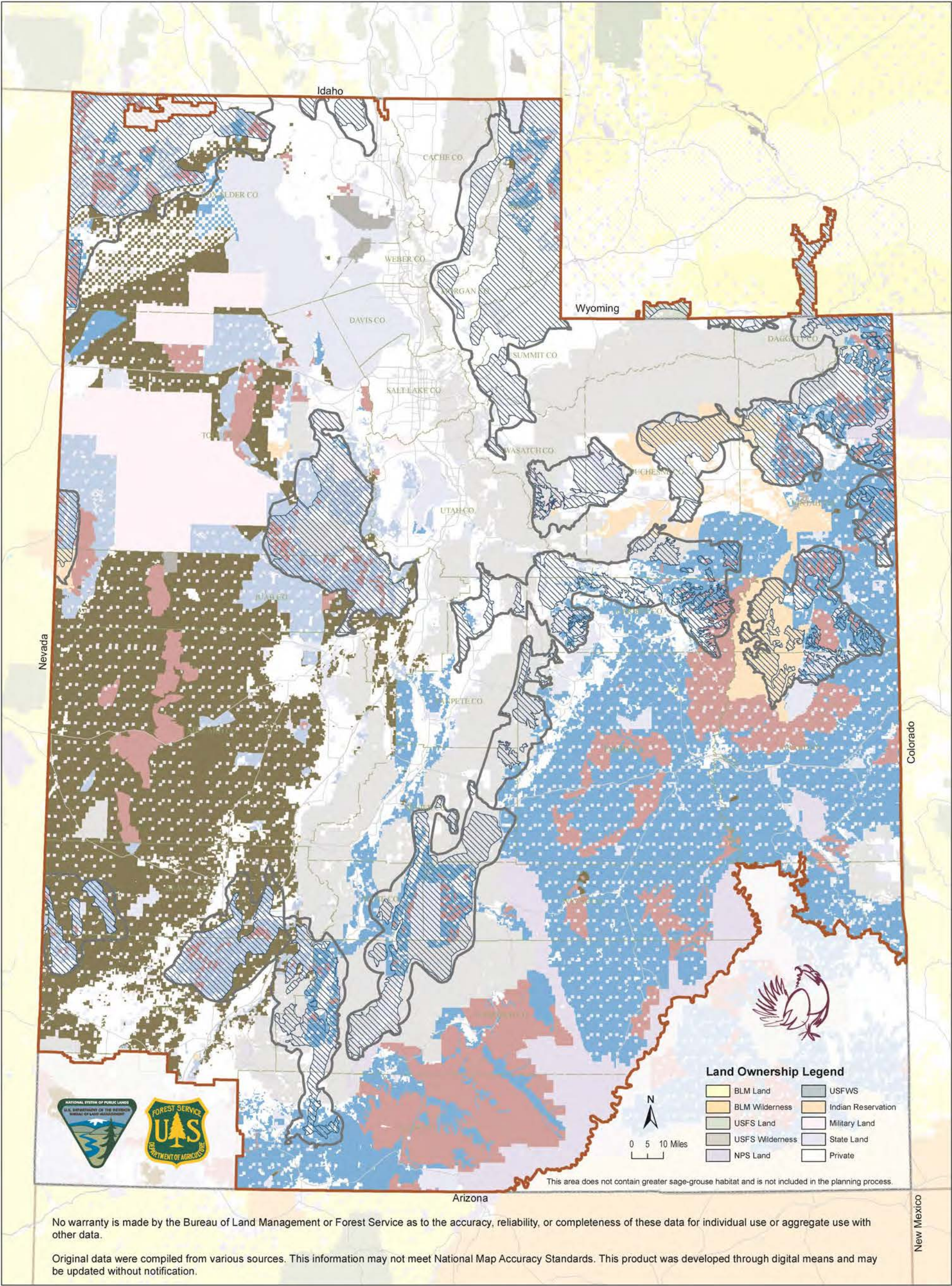


- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Population Areas
 - Alternative B - General
 - Alternative B - Priority

- OHV Area Designations**
- Open
 - Limited to Designated Routes
 - Limited to Existing Routes
 - Closed
 - National Forest System Lands - See Note

Note:
Forest Service lands do not have similar OHV management categories. OHV use on National Forest Lands within the planning area is limited to roads, trails, and areas that have been designated through a transportation planning process.

Alternative C
OHV Area Designations



Greater Sage-Grouse Areas

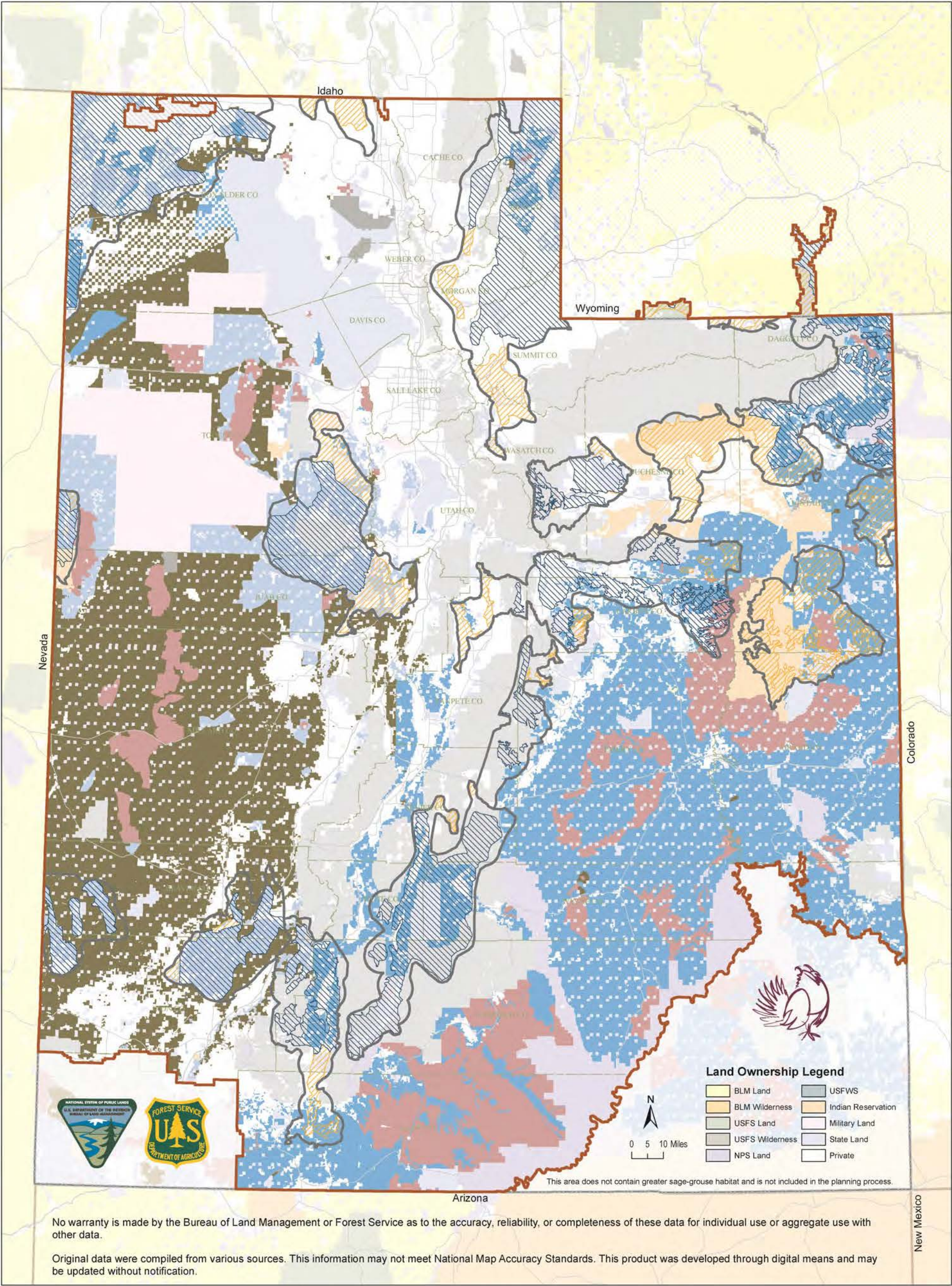
- Utah Sub-Regional Planning Area
- Population Areas
- Alternative C - Priority

OHV Area Designations

- Open
- Limited to Designated Routes
- Limited to Existing Routes
- Closed
- National Forest System Lands - See Note

Note:
Forest Service lands do not have similar OHV management categories. OHV use on National Forest Lands within the planning area is limited to roads, trails, and areas that have been designated through a transportation planning process.

Alternative D
OHV Area Designations

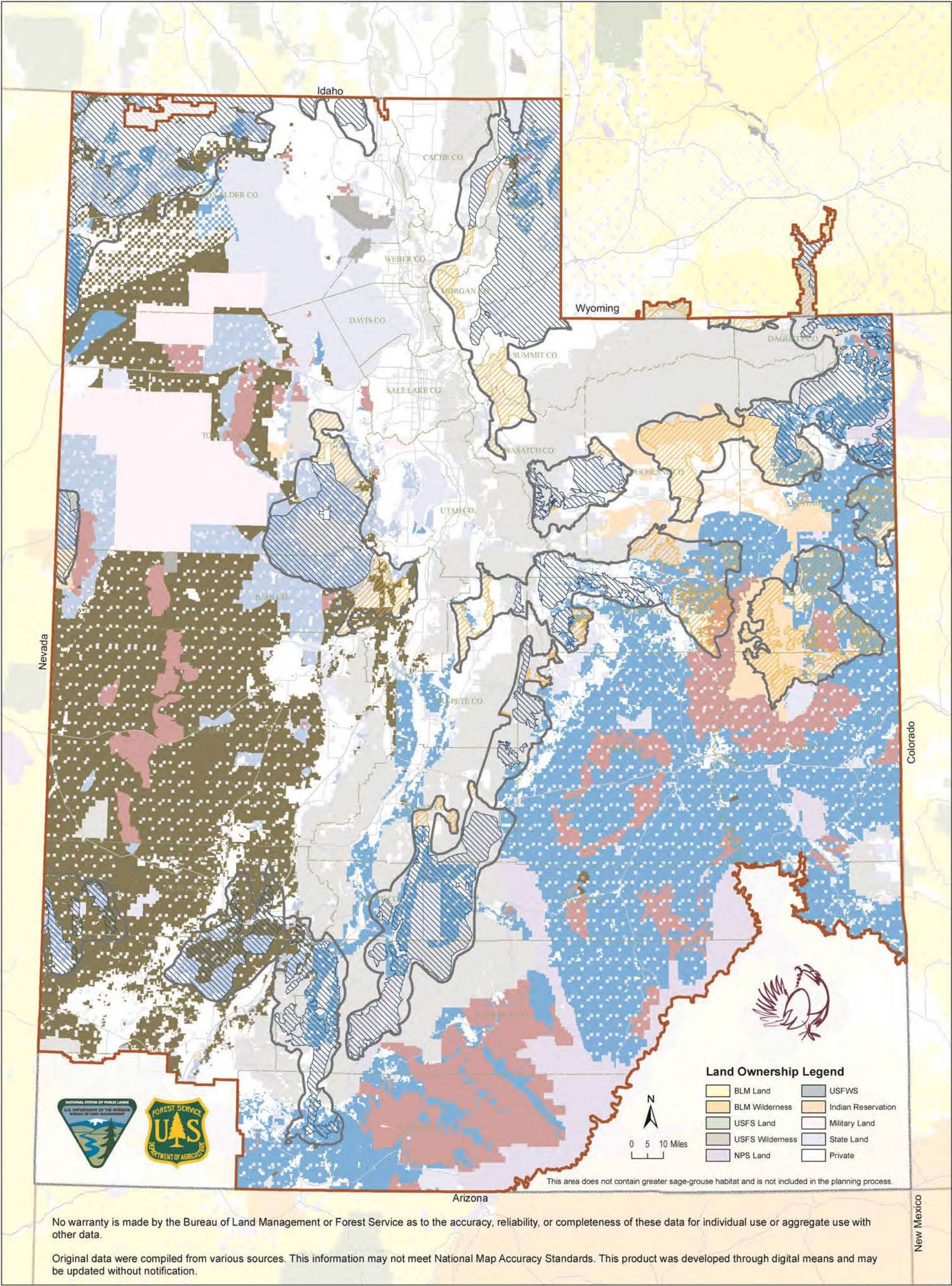


- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Population Areas
 - Alternative D - General
 - Alternative D - Priority

- OHV Area Designations**
- Open
 - Limited to Designated Routes
 - Limited to Existing Routes
 - Closed
 - National Forest System Lands - See Note

Note:
Forest Service lands do not have similar OHV management categories. OHV use on National Forest Lands within the planning area is limited to roads, trails, and areas that have been designated through a transportation planning process.

Alternative E
OHV Area Designations



Greater Sage-Grouse Areas

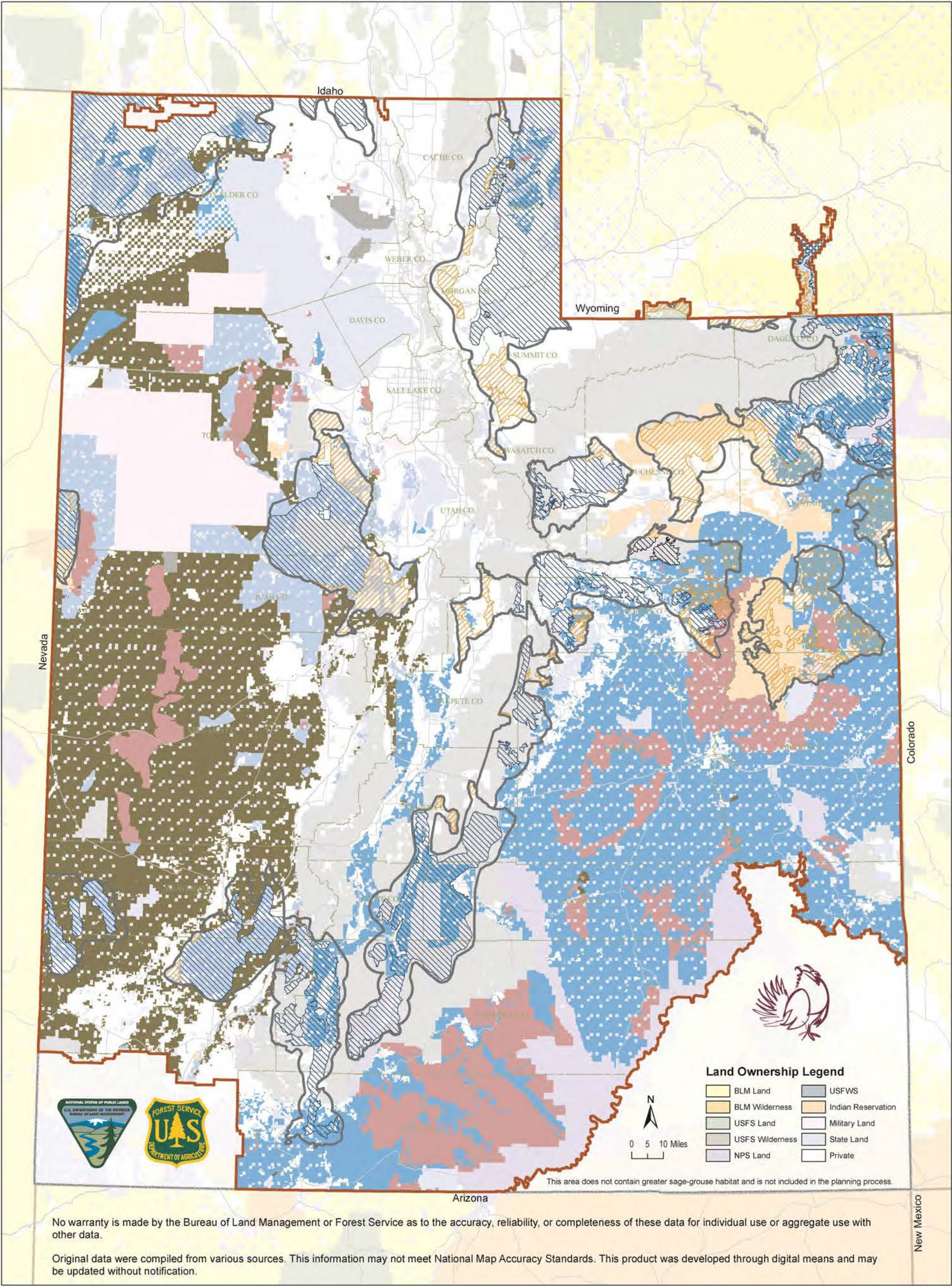
- Utah Sub-Regional Planning Area
- Population Areas
- Alternative E - Habitat Outside SGMAs
- Alternative E - Habitat Inside SGMAs

OHV Area Designations

- Open
- Limited to Designated Routes
- Limited to Existing Routes
- Closed
- National Forest System Lands - See Note

Note:
Forest Service lands do not have similar OHV management categories. OHV use on National Forest Lands within the planning area is limited to roads, trails, and areas that have been designated through a transportation planning process.

Proposed Plan
OHV Area Designations



Greater Sage-Grouse Areas

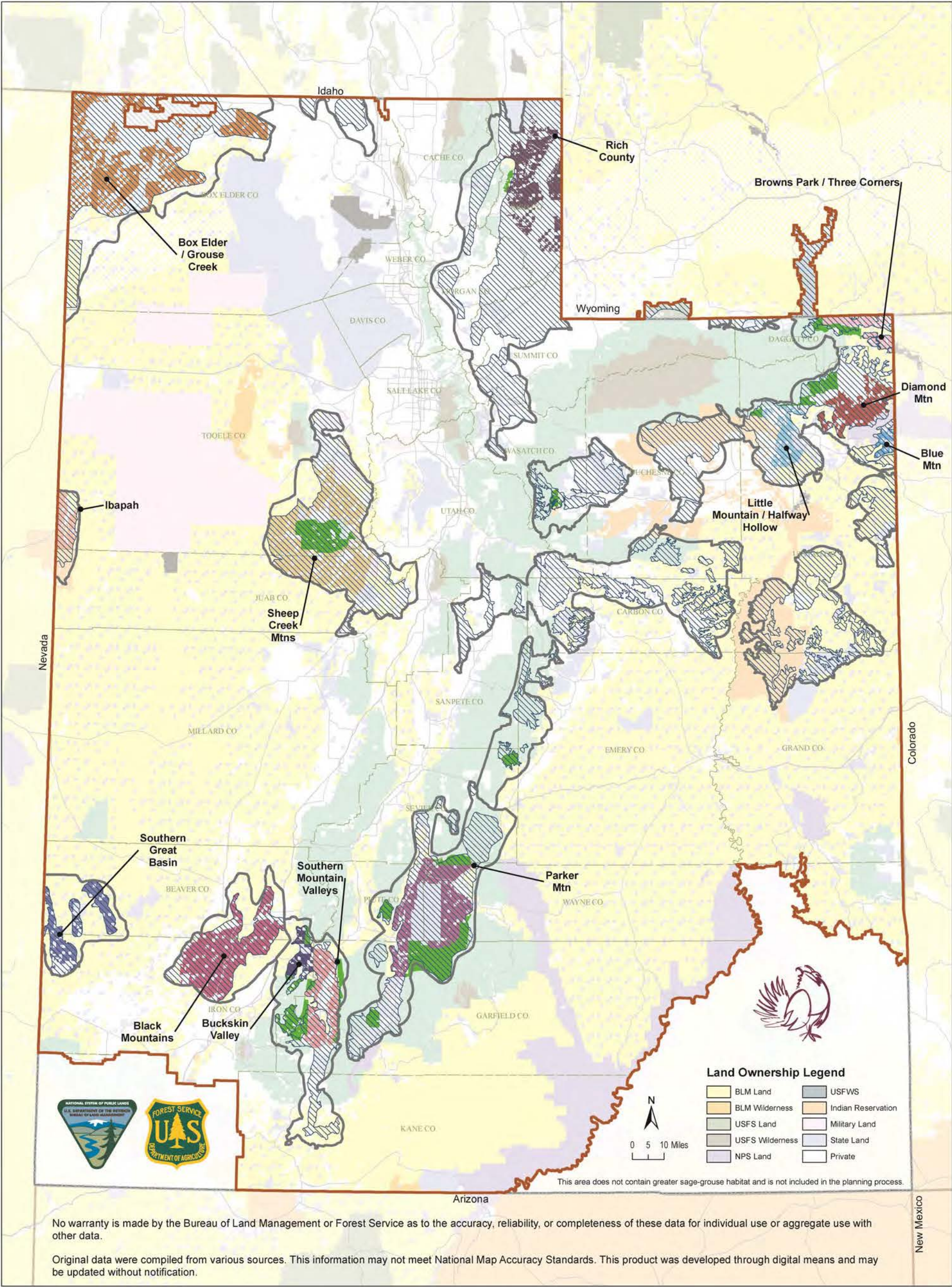
- Utah Sub-Regional Planning Area
- Population Areas
- General Habitat Management Areas
- Priority Habitat Management Areas
- Occupied - Anthro Mountain

OHV Area Designations

- Open
- Limited to Designated Routes
- Limited to Existing Routes
- Closed
- National Forest System Lands - See Note

Note:
Forest Service lands do not have similar OHV management categories. OHV use on National Forest Lands within the planning area is limited to roads, trails, and areas that have been designated through a transportation planning process.

Potential Areas of Critical Environmental Concern and Zoological Areas



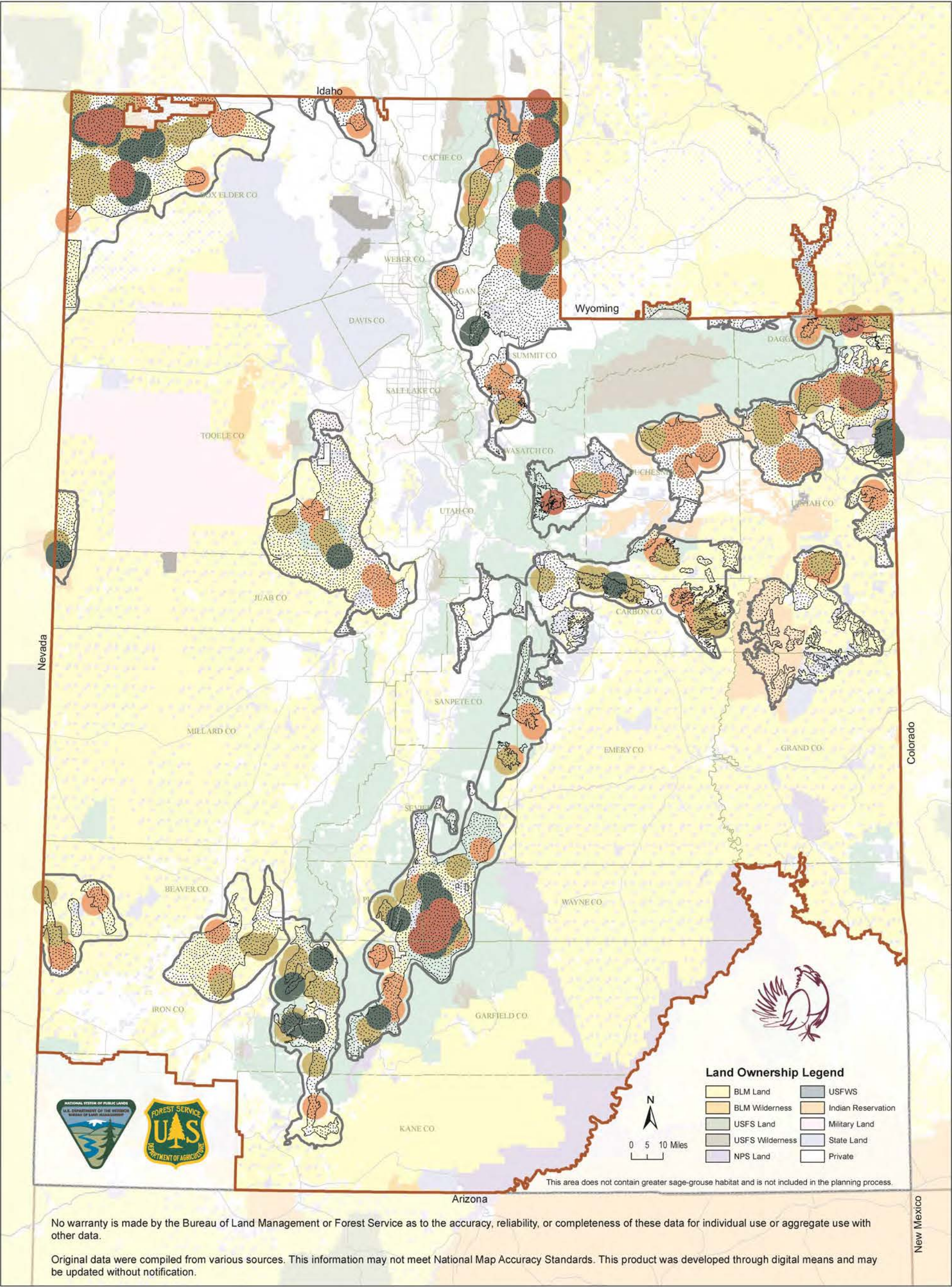
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Alternative C - Priority

Potential Areas of Critical Environmental Concern (ACEC) and GRSG Zoological Areas

- | | | |
|-----------------------------|----------------------------------|---------------------------|
| Black Mountains | Diamond Mtn | Sheep Creek Mtns |
| Blue Mtn | Ibapah | Southern Great Basin |
| Box Elder / Grouse Creek | Little Mountain / Halfway Hollow | Southern Mountain Valleys |
| Browns Park / Three Corners | Parker Mtn | USFS Zoological Areas |
| Buckskin Valley | Rich County | |

Utah Breeding Bird Density



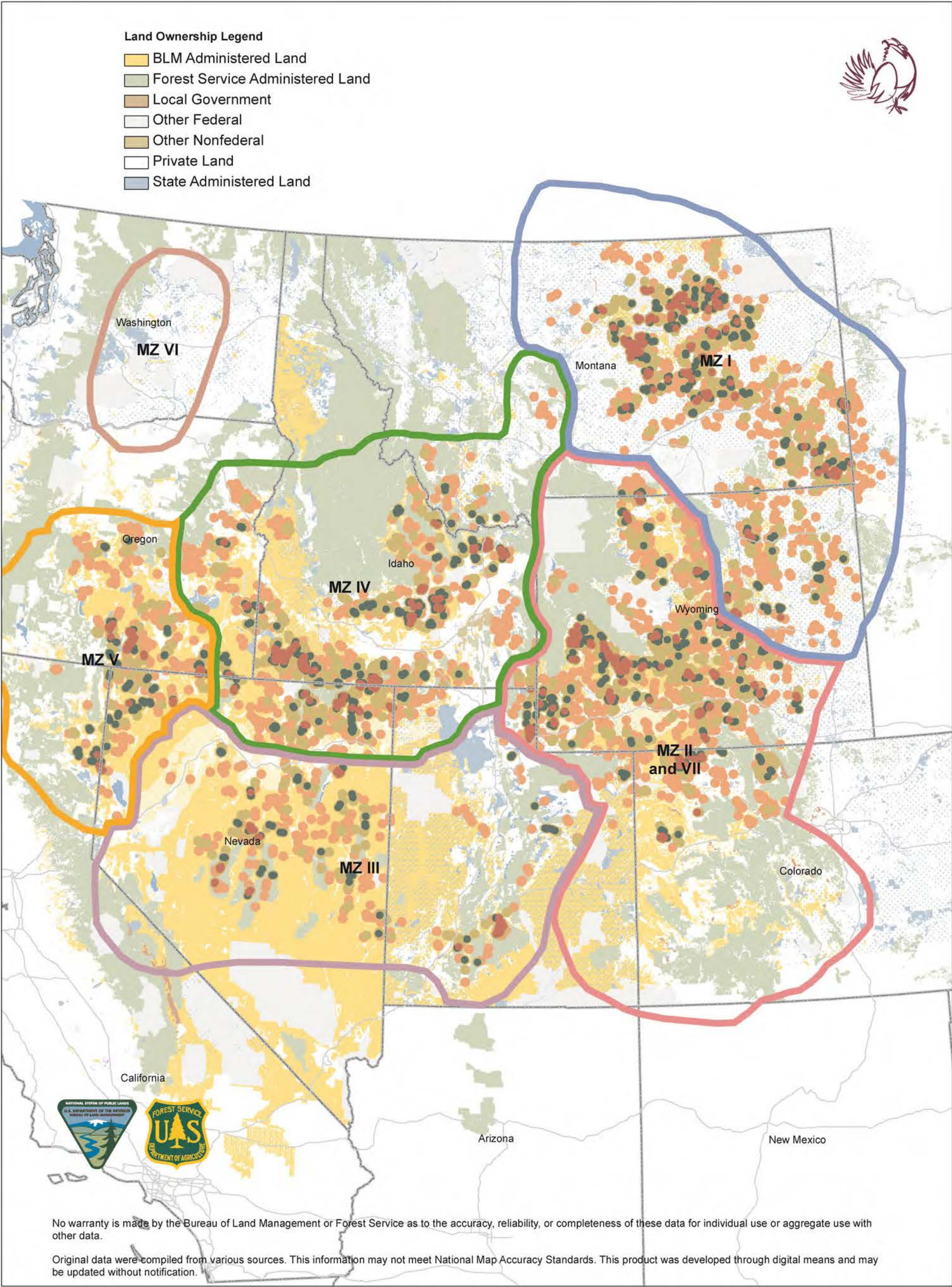
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Utah Breeding Bird Densities

- 25% of Population
- 50% of Population
- 75% of Population
- 100% of Population

WAFWA Management Zones and Greater Sage-Grouse Breeding Bird Densities

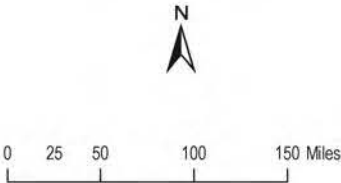


WAFWA Management Zones

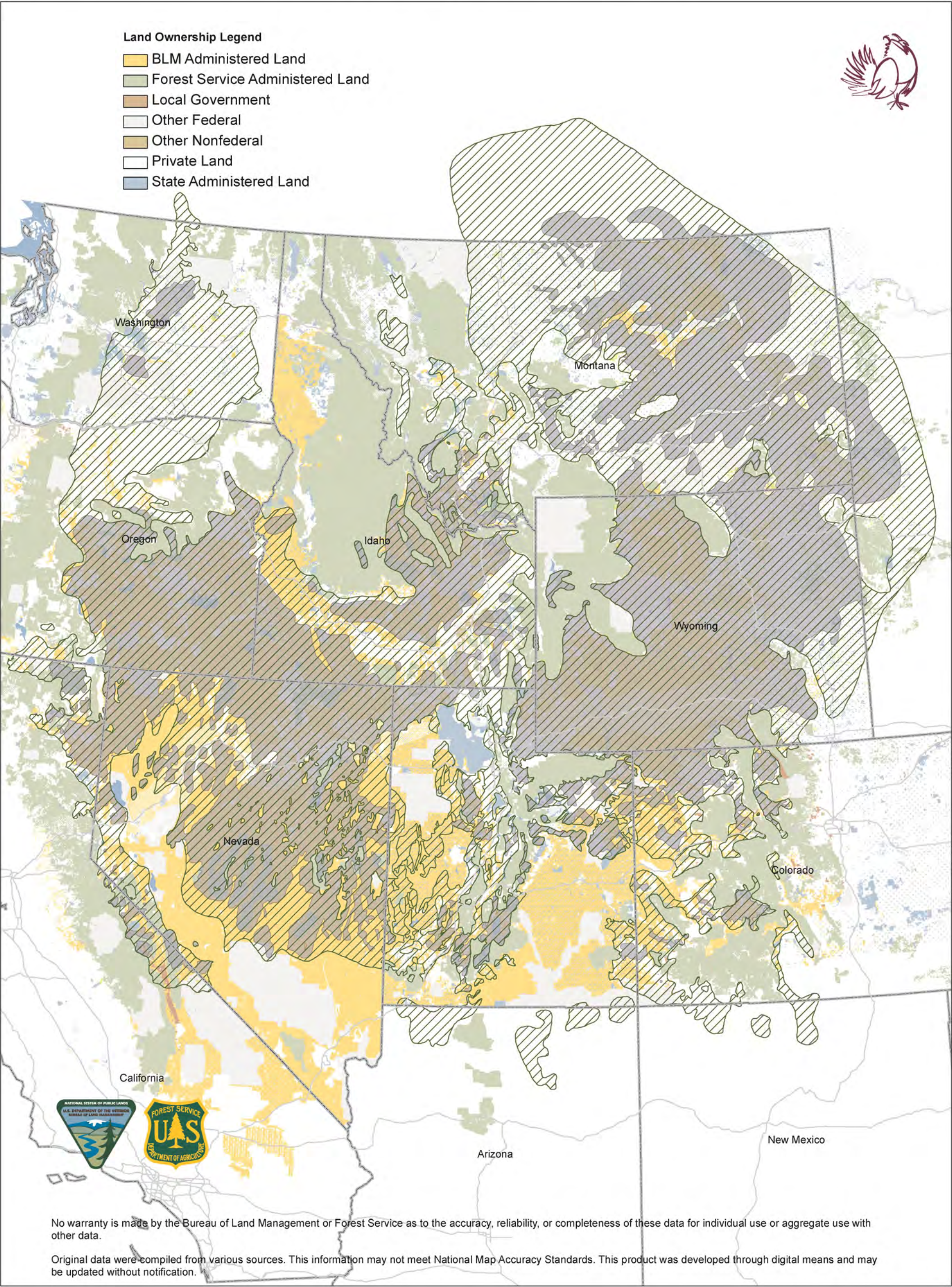
- Management Zone VI - Columbia Basin
- Management Zone I - Great Plains
- Management Zone V - Northern Great Basin
- Management Zone IV - Snake River Plain
- Management Zone III - Southern Great Basin
- Management Zones II & VII - Wyoming Basin and Colorado Plateau

Greater Sage-Grouse Breeding Bird Densities

- 25% of Population
- 50% of Population
- 75% of Population
- 100% of Population

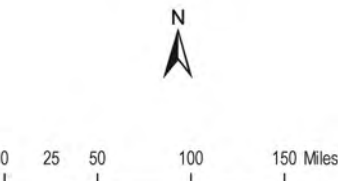


Current and Historic Greater Sage-Grouse Habitat

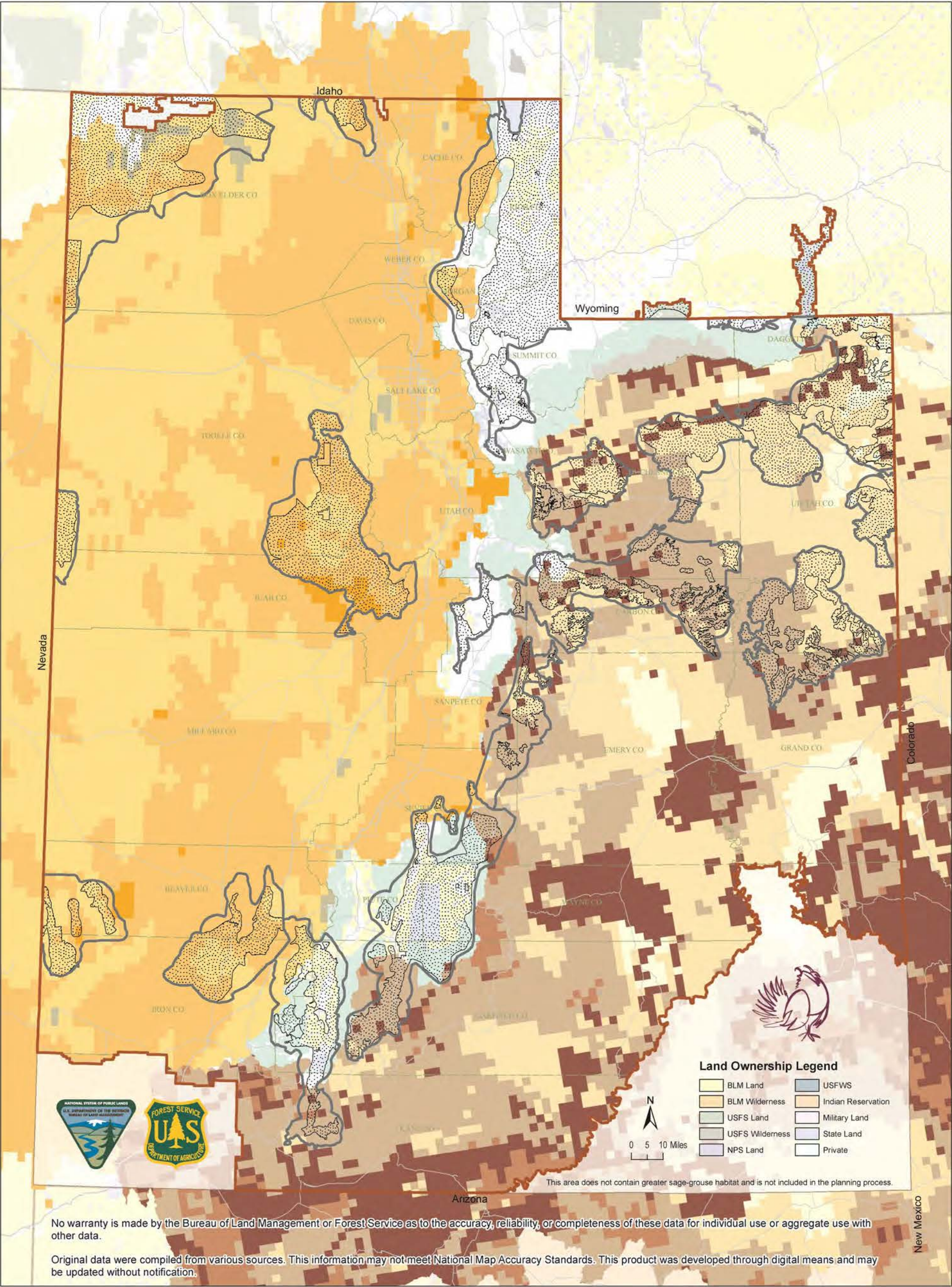


Greater Sage-Grouse Areas

- Historic Sage Grouse Habitat
- Current Sage Grouse Habitat



Climate Space Trends Intensity and Predicted Future Climate



Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

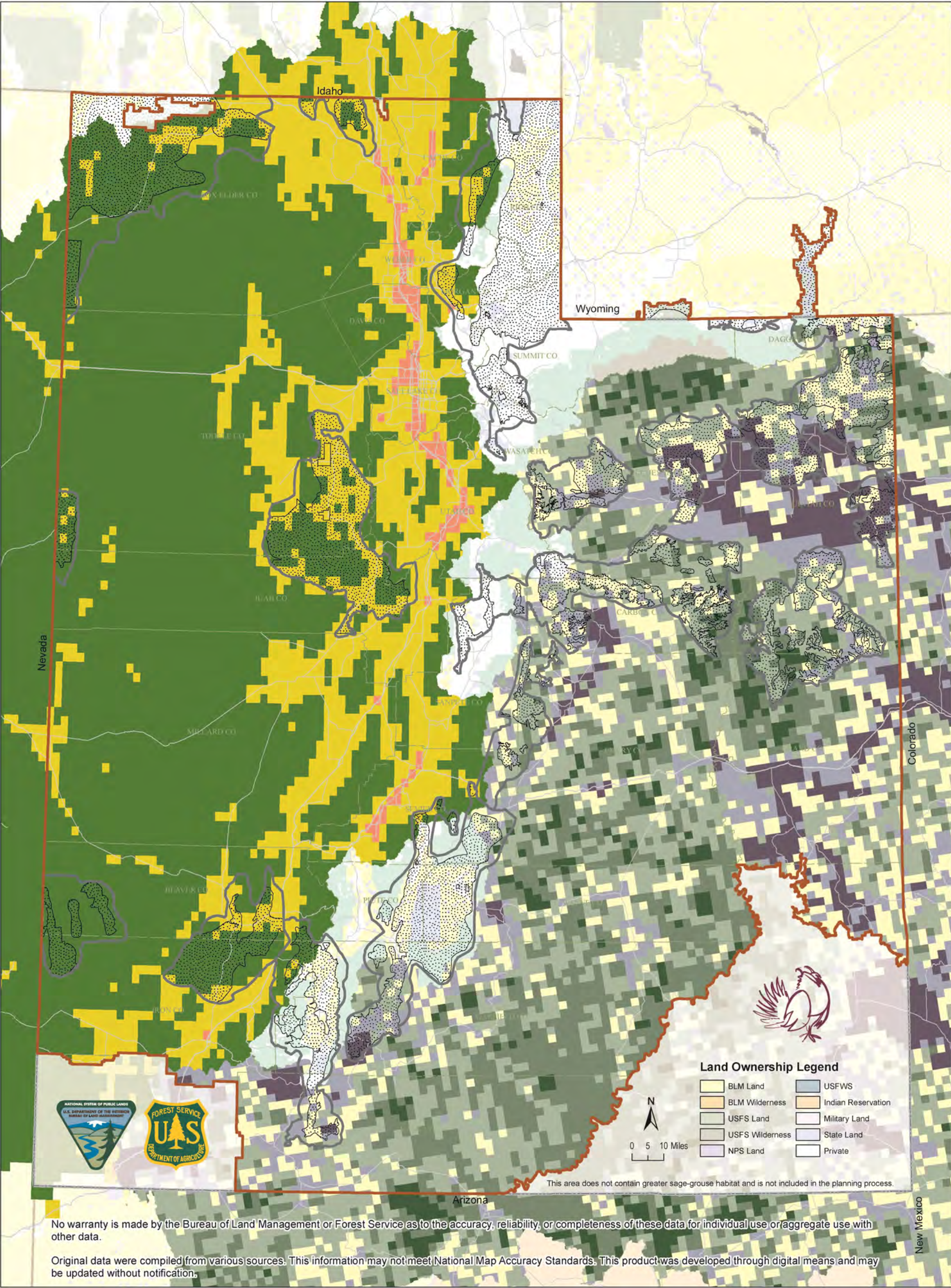
Forecasted Climate Change Variables

- 10 to 12 Variables
- 7 to 9 Variables
- 4 to 6 Variables
- 1 to 3 Variables

Long-Term Potential For Climate Change

- Very High
- Moderately High
- Moderate
- Moderately Low
- Very Low

Landscape Condition and Ecological Intactness



Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

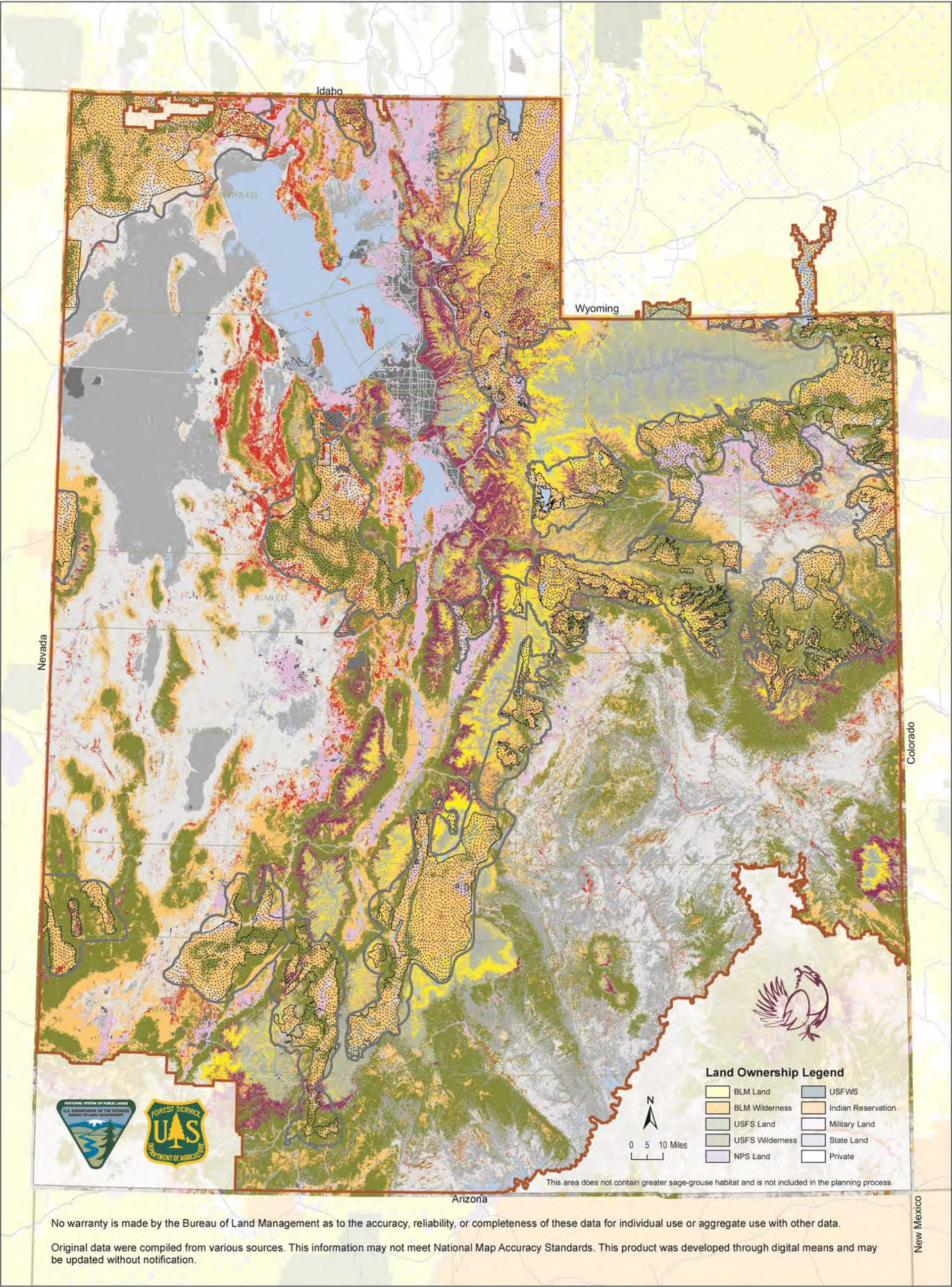
Landscape Condition Model Score

0.7 - 1.0	0 - 0.3
0.4 - 0.6	

Ecological Intactness

Very High	Moderately Low
High	Low
Moderately High	Very Low

General Vegetation



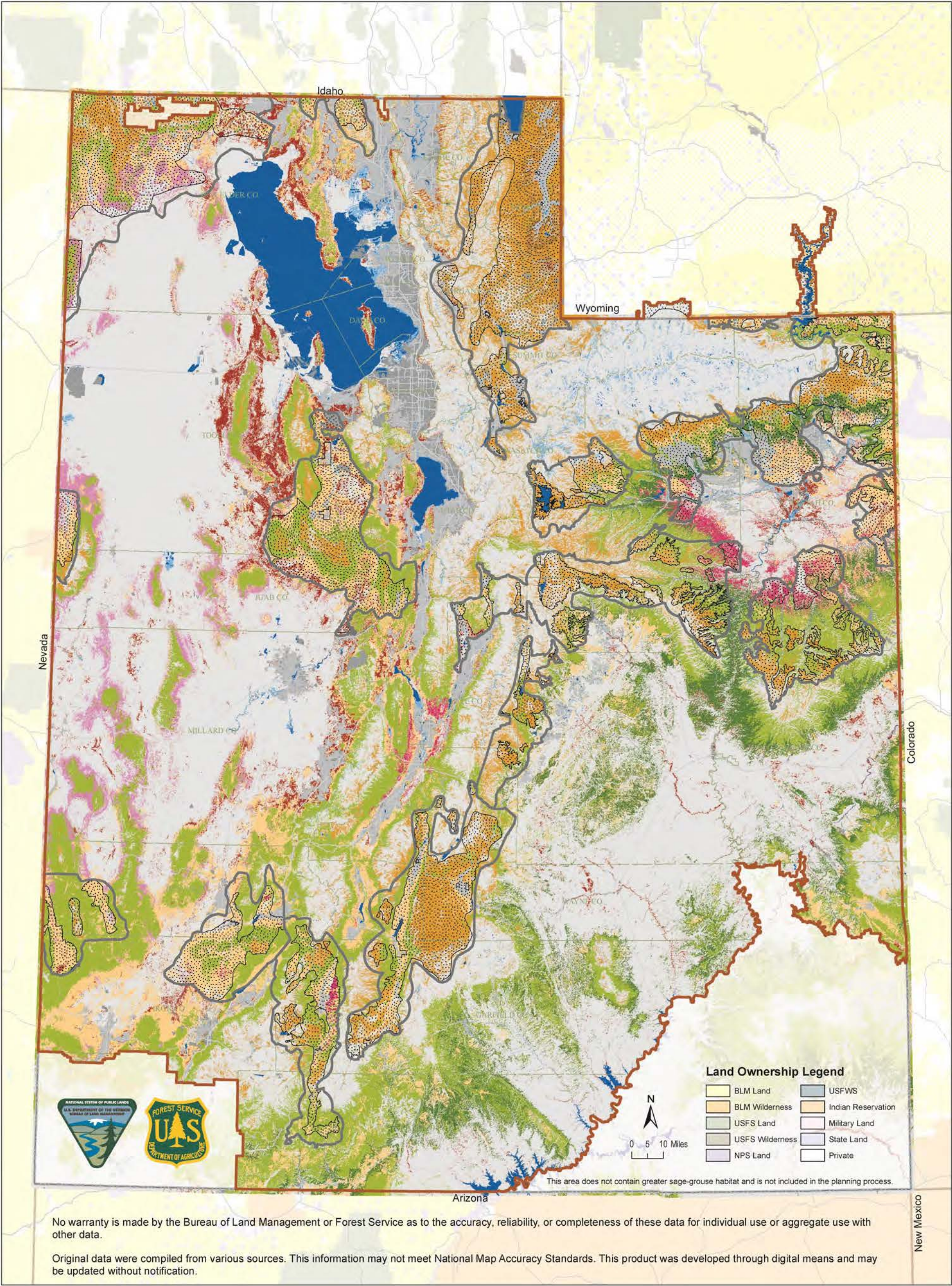
Greater Sage-Grouse Areas

- Population Areas
- Occupied Habitat

General Vegetation Classes

- | | | |
|----------------------------------|-------------------------|---|
| Agriculture | Developed / Disturbance | Non-Vegetated / Other |
| Aspen | Grassland | Pinyon-Juniper |
| Conifer | Invasives | Sagebrush |
| Desert Shrub / Salt Desert Scrub | Mountain Shrub | Water / Riparian / Wetland / Wet Meadow |

Vegetation - Sagebrush Categories



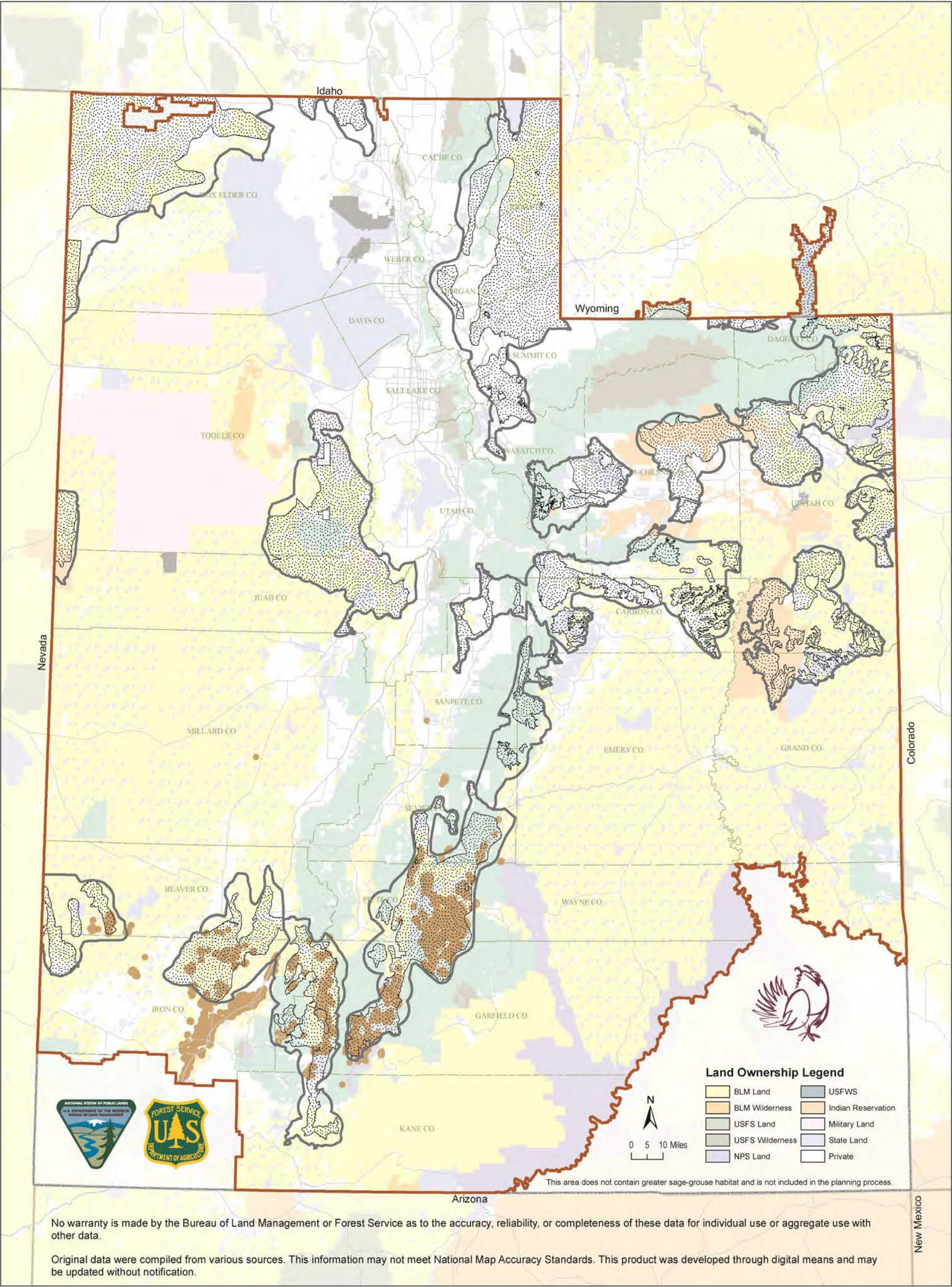
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Vegetation - Sagebrush Categories

- | | |
|--|---|
| Agriculture | Invasives |
| Colorado Plateau Mixed Low Sagebrush Shrubland | Other |
| Developed / Disturbance | Pinyon-Juniper Shrubland |
| Great Basin Xeric Mixed Sagebrush Shrubland | Pinyon-Juniper Woodland |
| Inter-Mountain Basins Big Sagebrush Shrubland | Water |
| Inter-Mountain Basins Big Sagebrush Steppe | Water / Riparian / Wetland / Wet Meadow |
| Inter-Mountain Basins Montane Sagebrush Steppe | |

Utah Prairie Dog Habitat



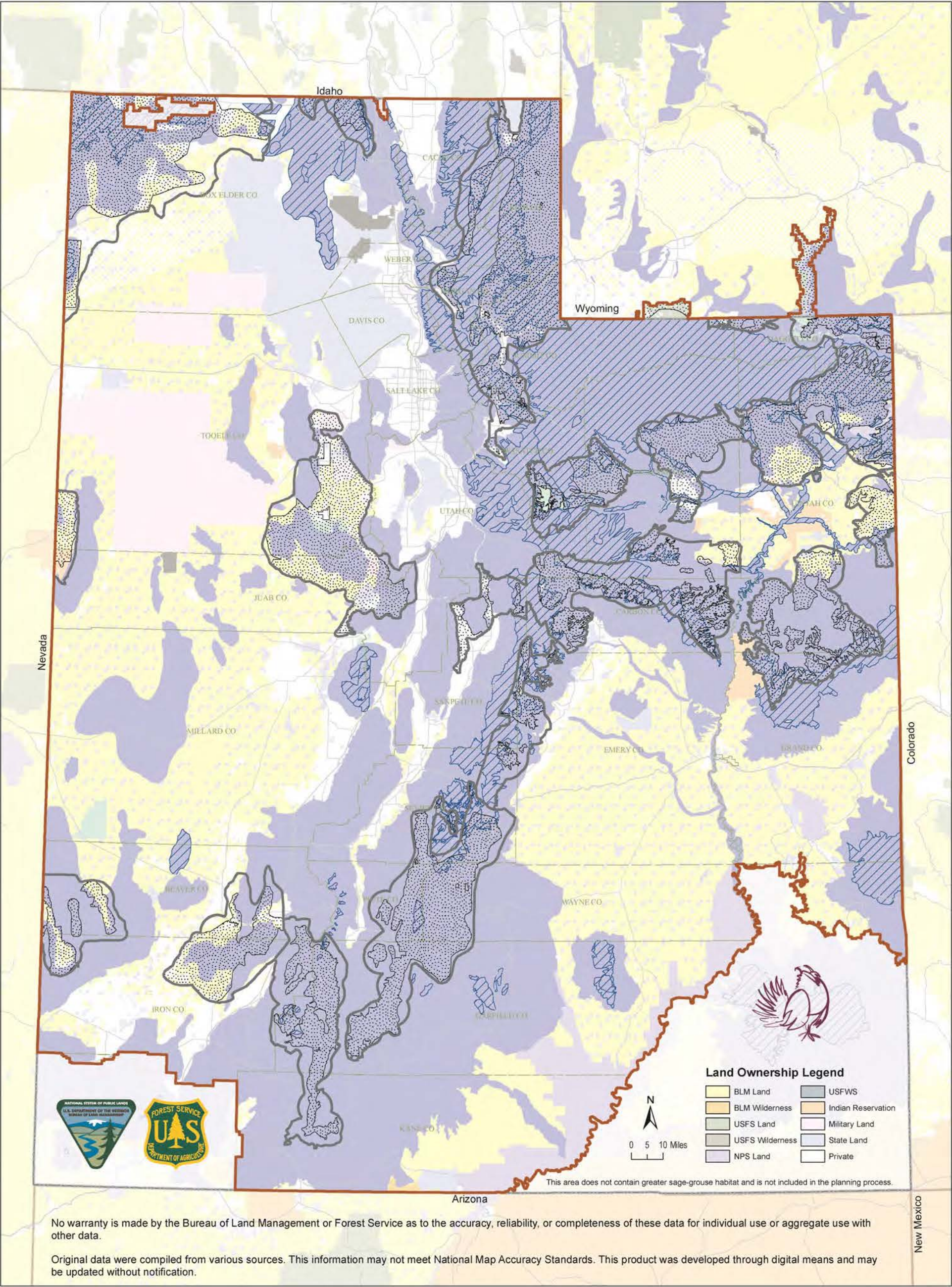
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Utah Prairie Dog Habitat

- Utah Prairie Dog Complex

Mule Deer Habitat



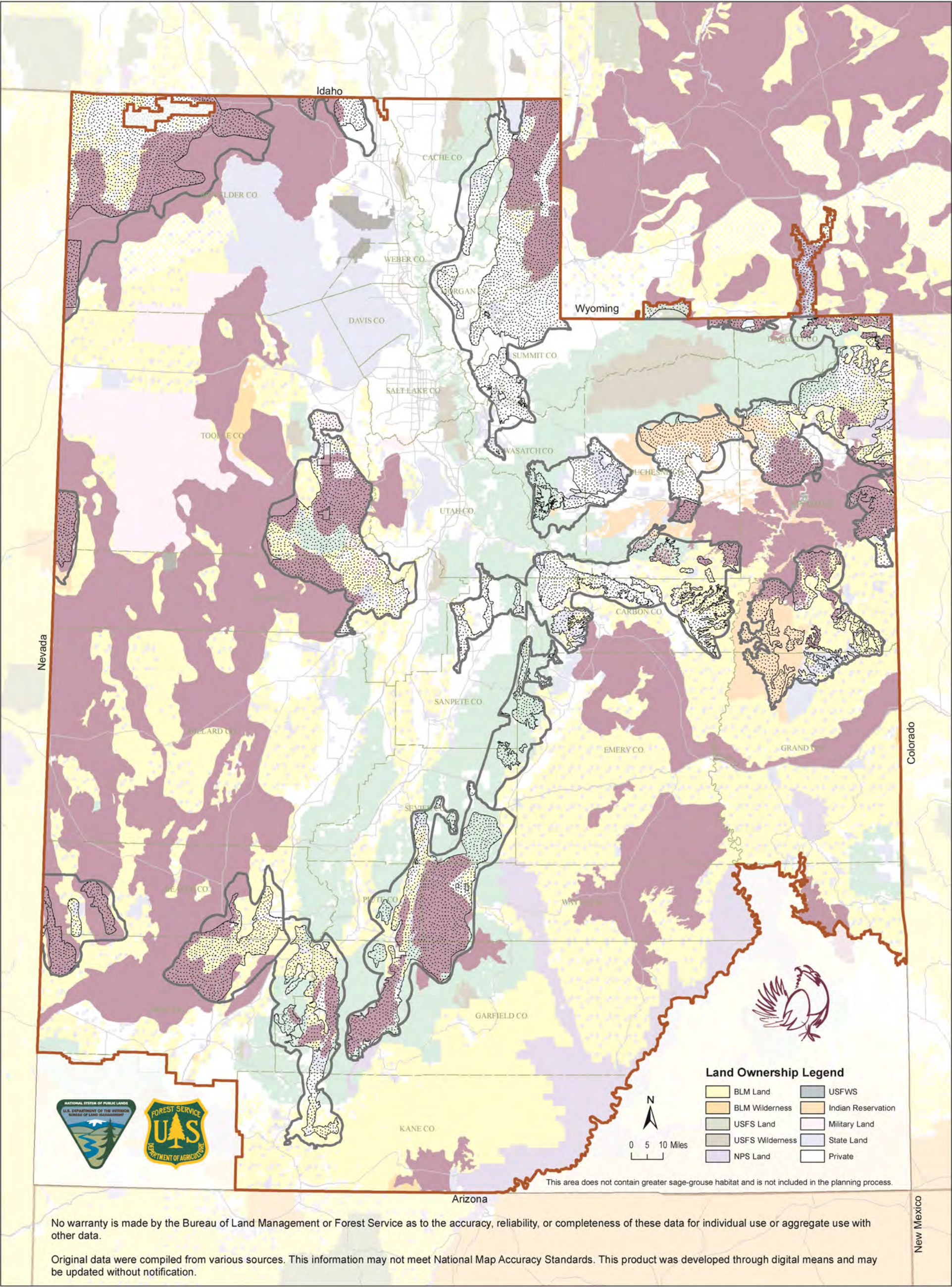
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Mule Deer Habitat

- Crucial Winter or Crucial Year-long Habitat
- Fawning Areas

Pronghorn Habitat



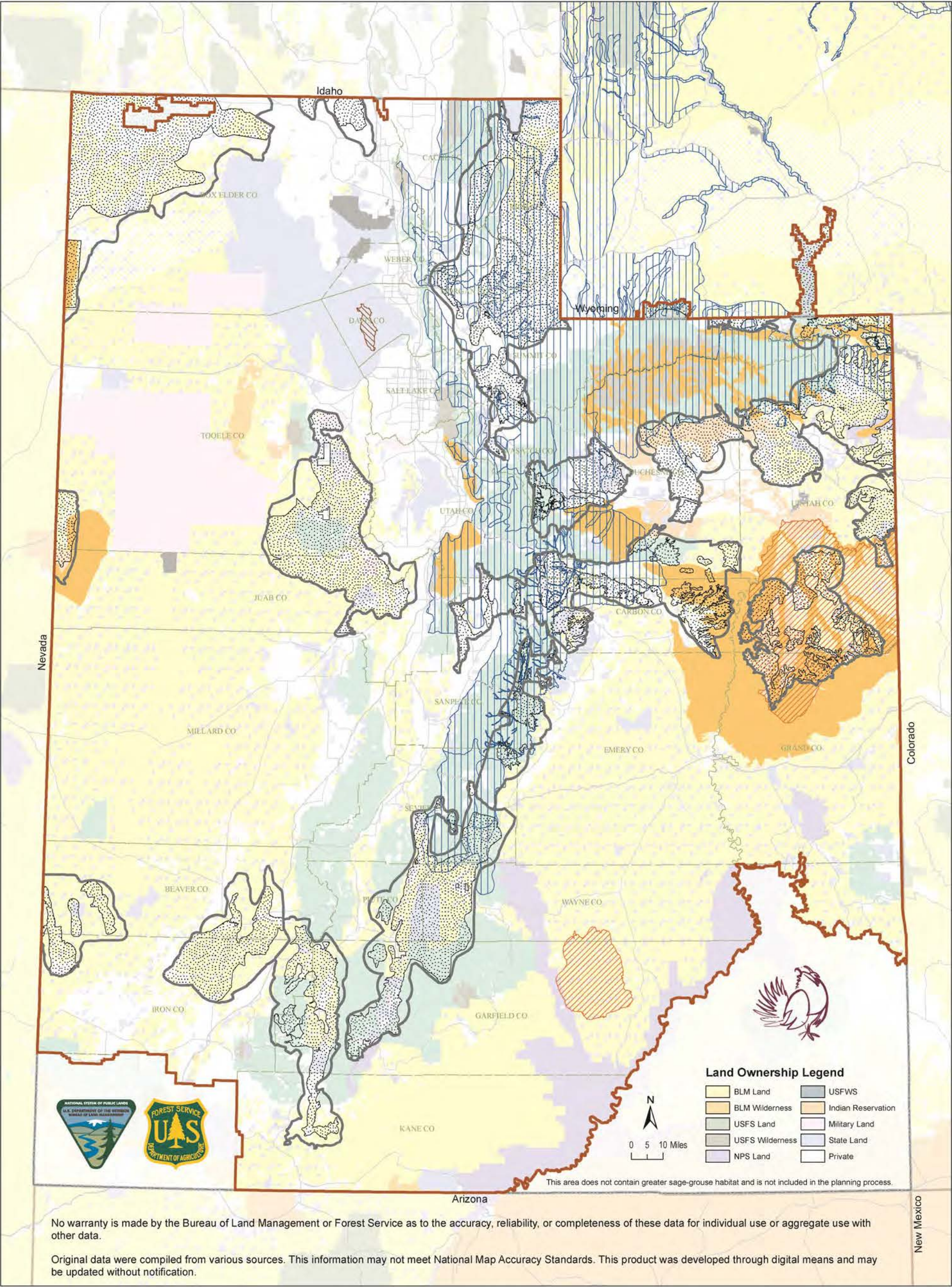
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

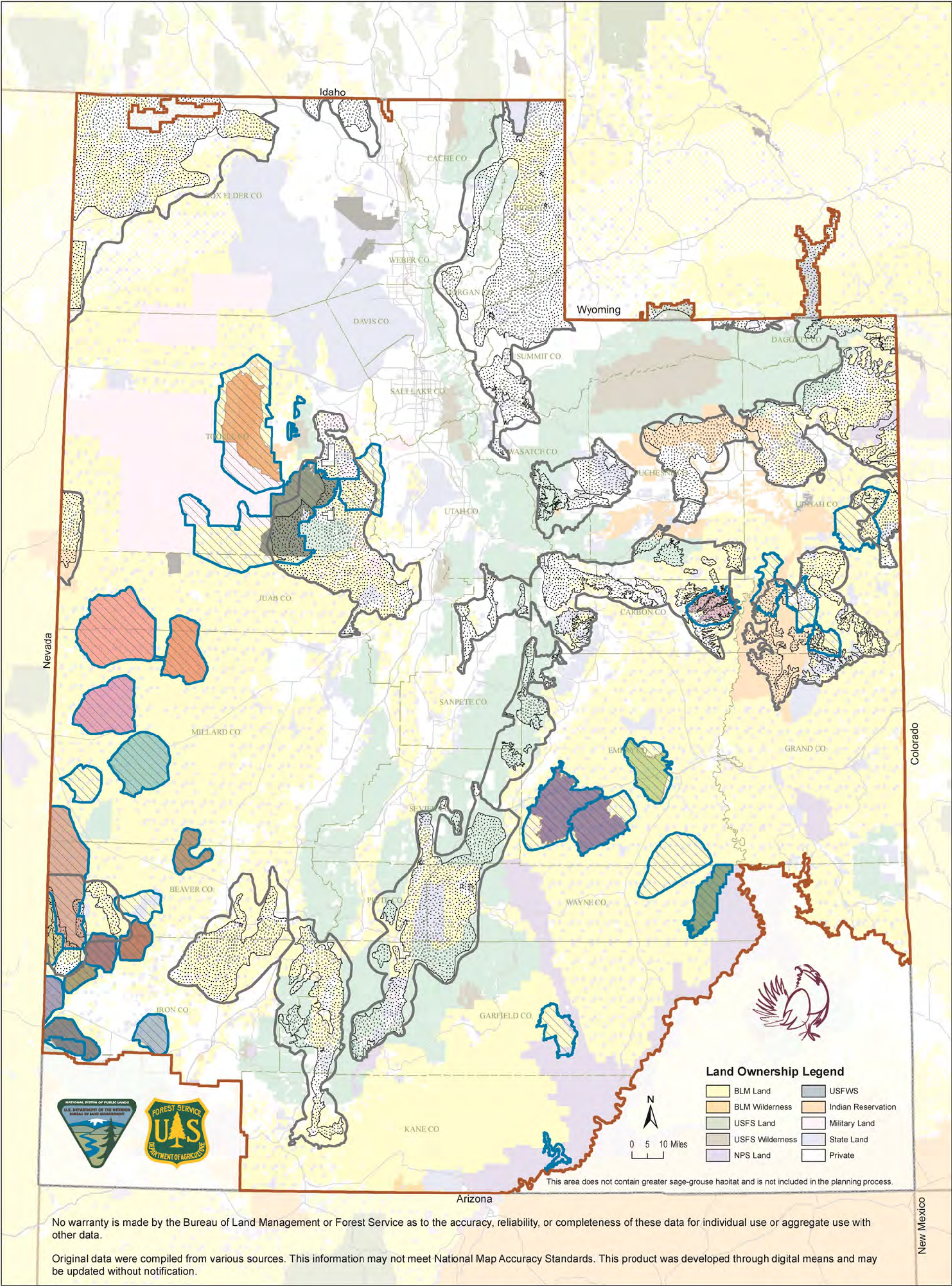
Antelope Habitat

- Pronghorn Antelope Habitat

Rocky Mountain Bighorn Sheep, Bison and Moose Habitat



Wild Horse and Burro Herd Management Areas



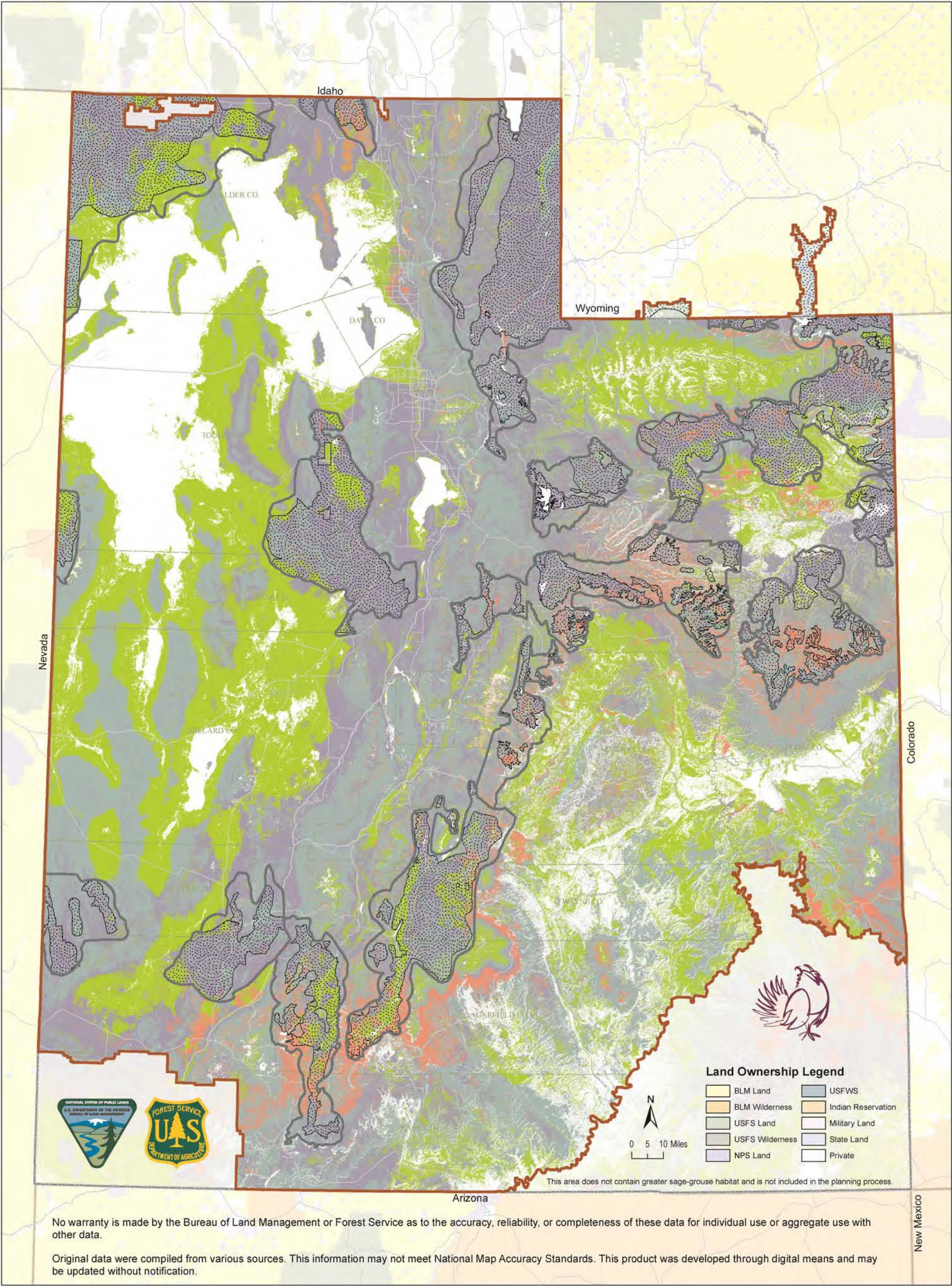
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Wild Horse and Burro Herd Management Areas

- | | | | |
|-----------------|-----------|-----------------|-----------------------|
| Bible Spring | Confusion | Mt. Elinor | Sinbad |
| Canyon Lands | Conger | Muddy Creek | Sulphur |
| Cedar Mountain | Four Mile | North Hills | Swasey |
| Chloride Canyon | Frisco | Onaqui Mountain | Tilly Creek |
| Choke Cherry | King Top | Range Creek | Wild Horse Herd Areas |

Wildland Fire Regime



- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Population Areas
 - Occupied Habitat

- Wildland Fire Regime**
- Fire Regime Class 1
 - Fire Regime Class 2
 - Fire Regime Class 3
 - Fire Regime Class 4
 - Fire Regime Class 5

Wildland Fire Condition Class



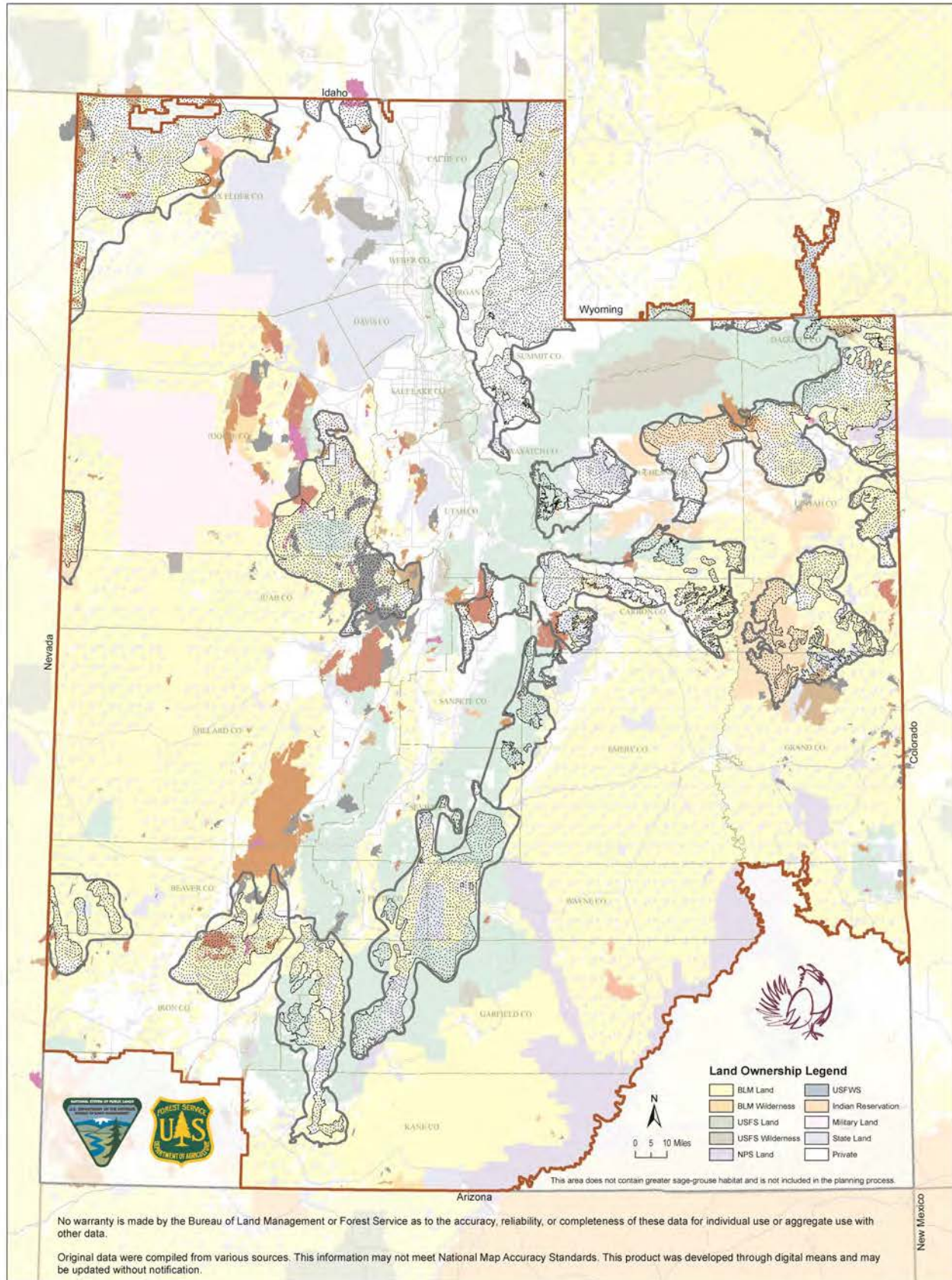
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Wildland Fire Condition Class

- Vegetation Condition Class I
- Vegetation Condition Class II
- Vegetation Condition Class III

Wildland Fire History



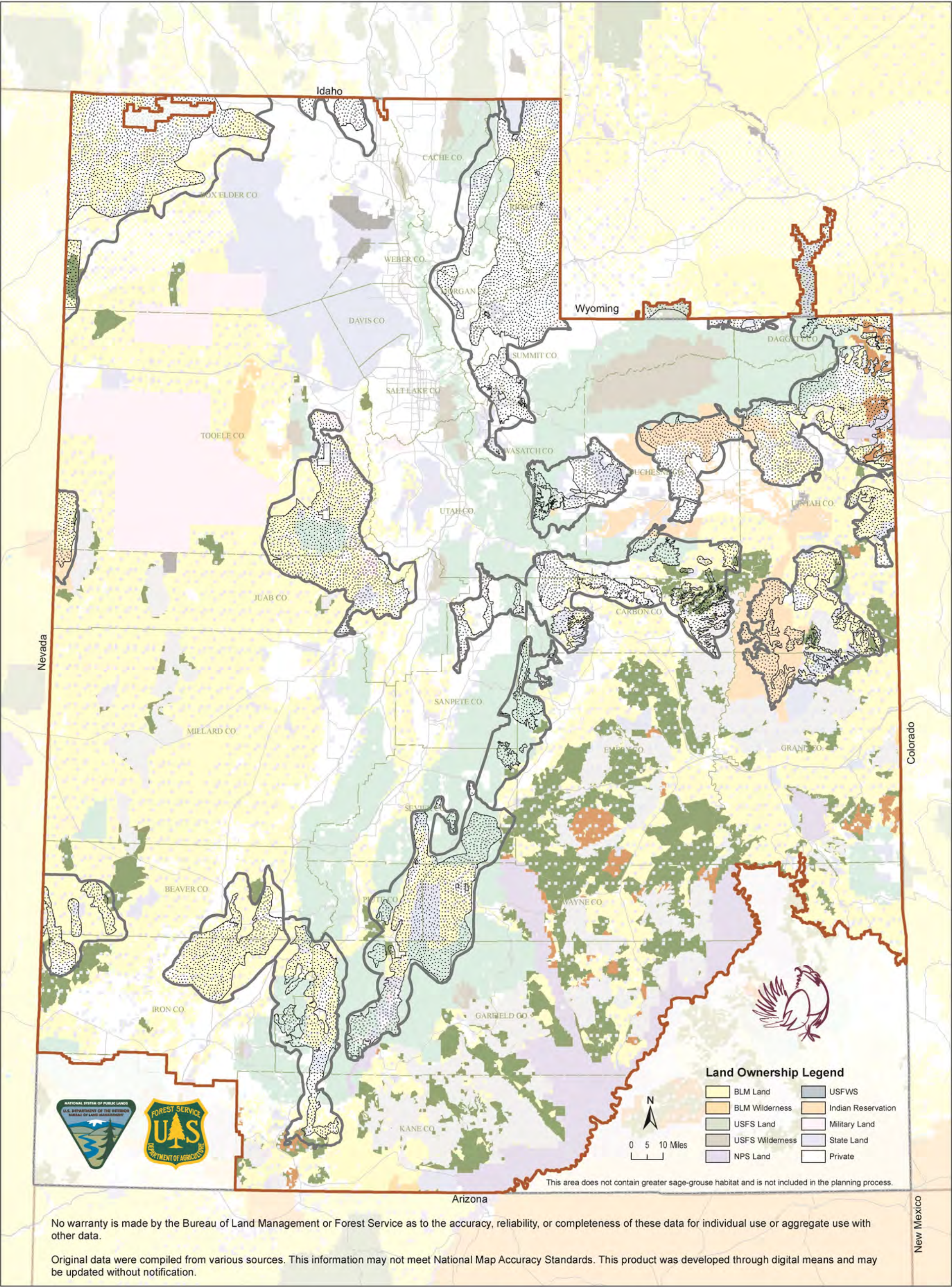
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Wildland Fire History

- 2013 - 2015
- 2009 - 2012
- 2006 - 2008
- 2003 - 2005
- 2000 - 2002
- Prior to 2000

Lands with Wilderness Characteristics and BLM Natural Areas



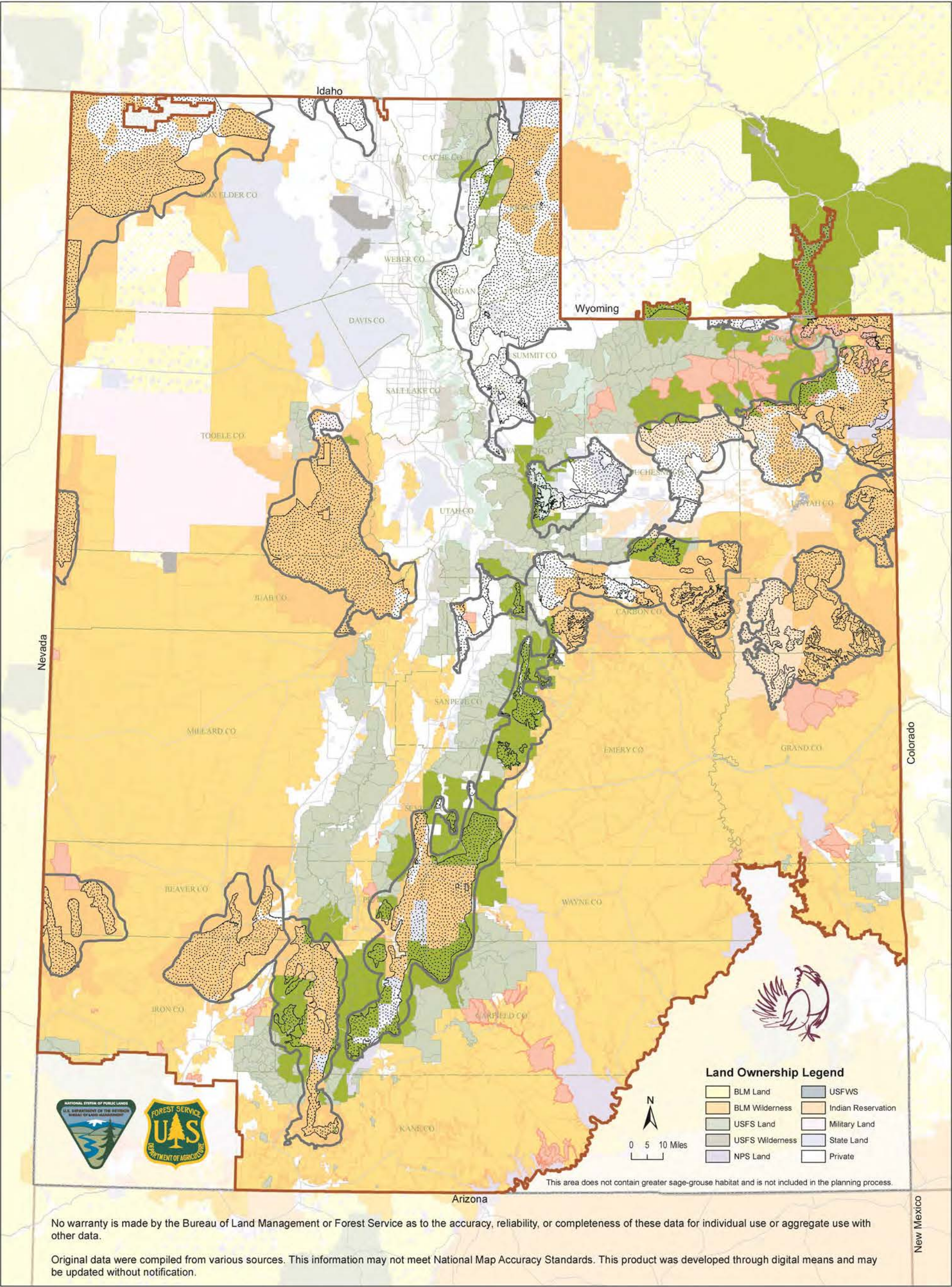
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Lands with Wilderness Characteristics and BLM Natural Areas

- Natural Areas
- Land with Wilderness Characteristics
- Wilderness Study Areas

Livestock Grazing Allotments



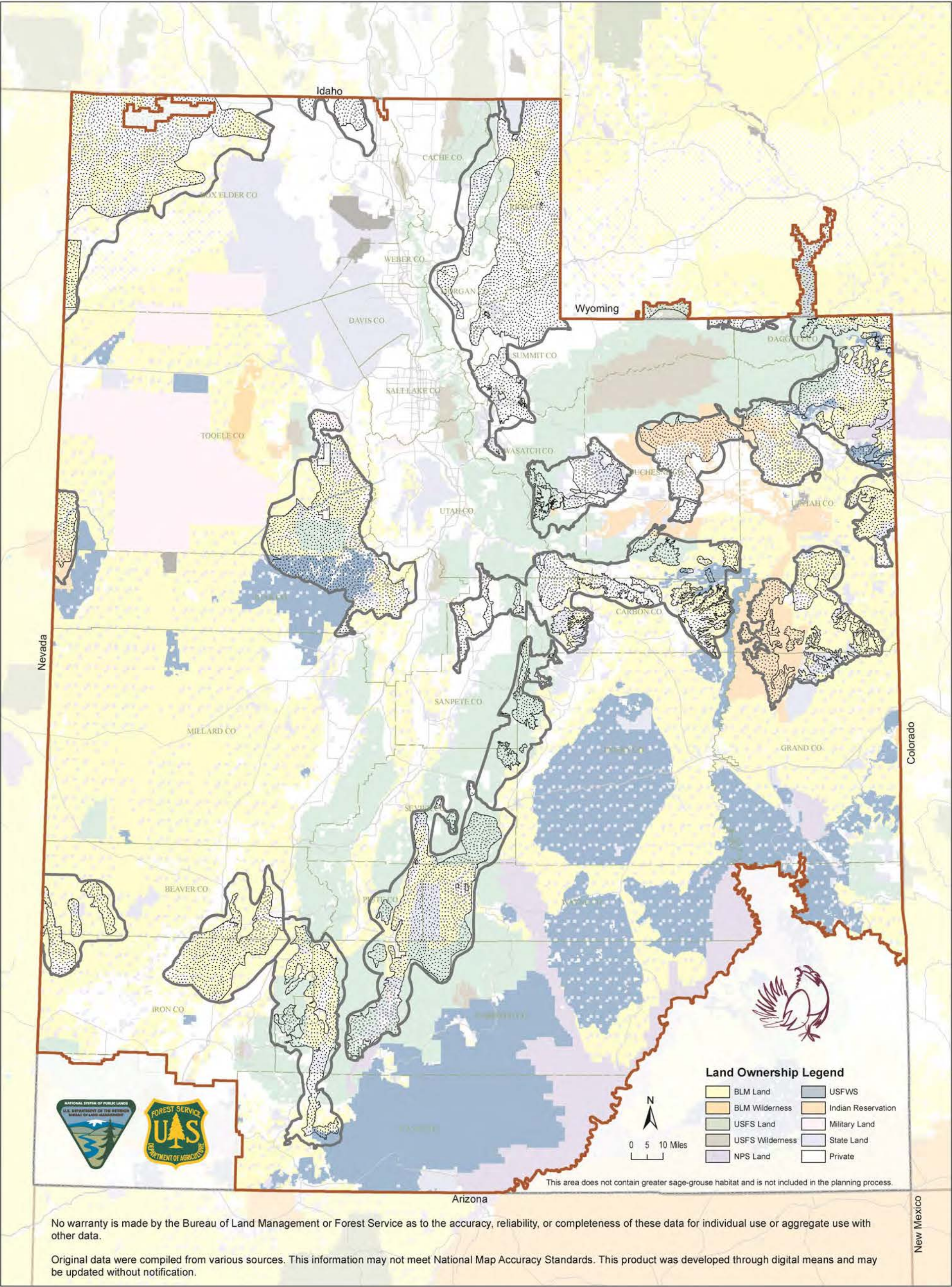
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Livestock Grazing Allotments

- BLM Allotments Open to Grazing
- USFS Allotments Open to Grazing
- Allotments Closed to Grazing
- BLM Grazing Allotments Where Sage Grouse Habitat Exists
- USFS Grazing Allotments Where Sage Grouse Habitat Exists

Special Recreation Management Areas



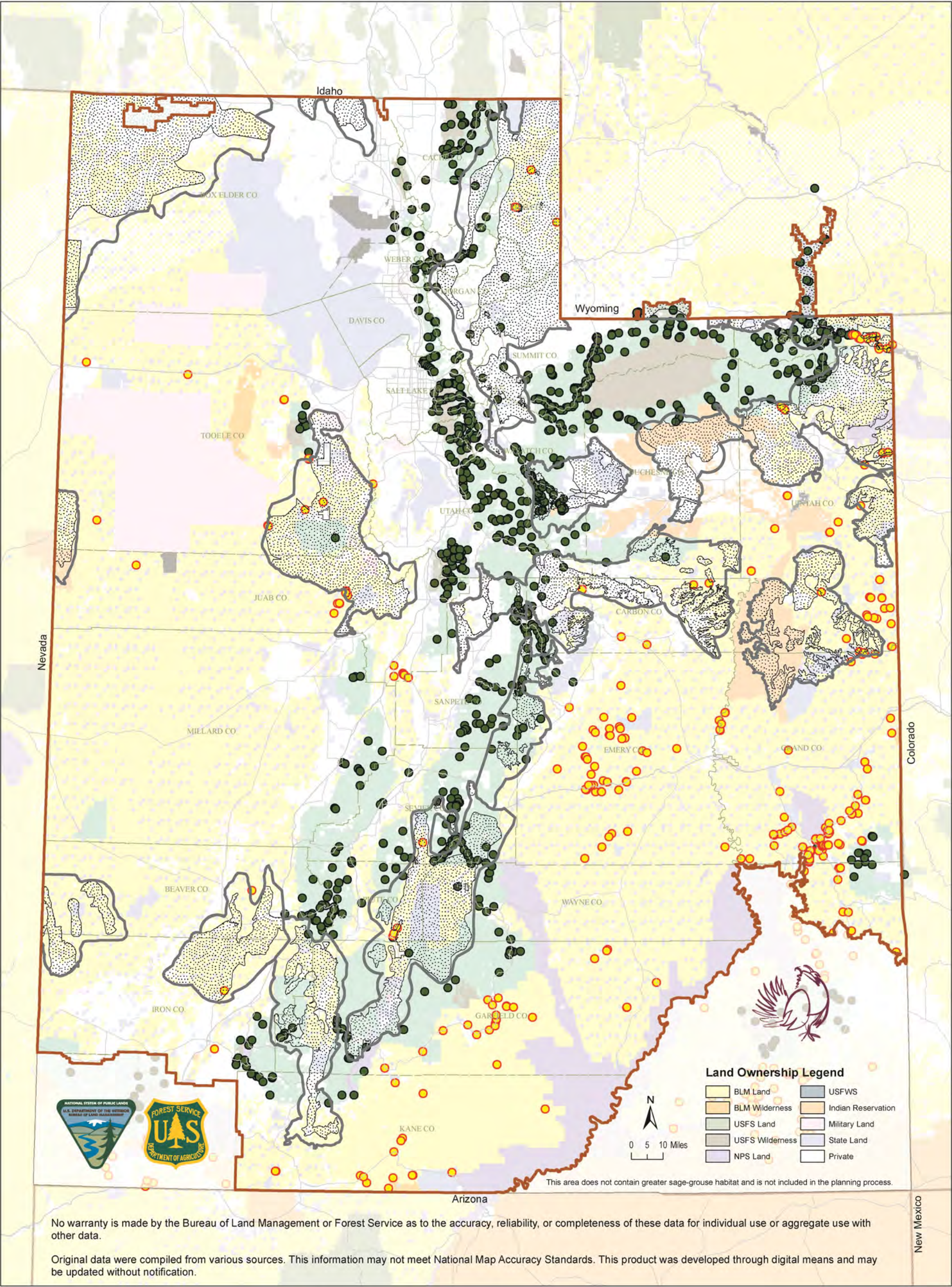
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Recreation Sites

- Special Recreation Management Areas (SRMA)

Developed Recreation Sites



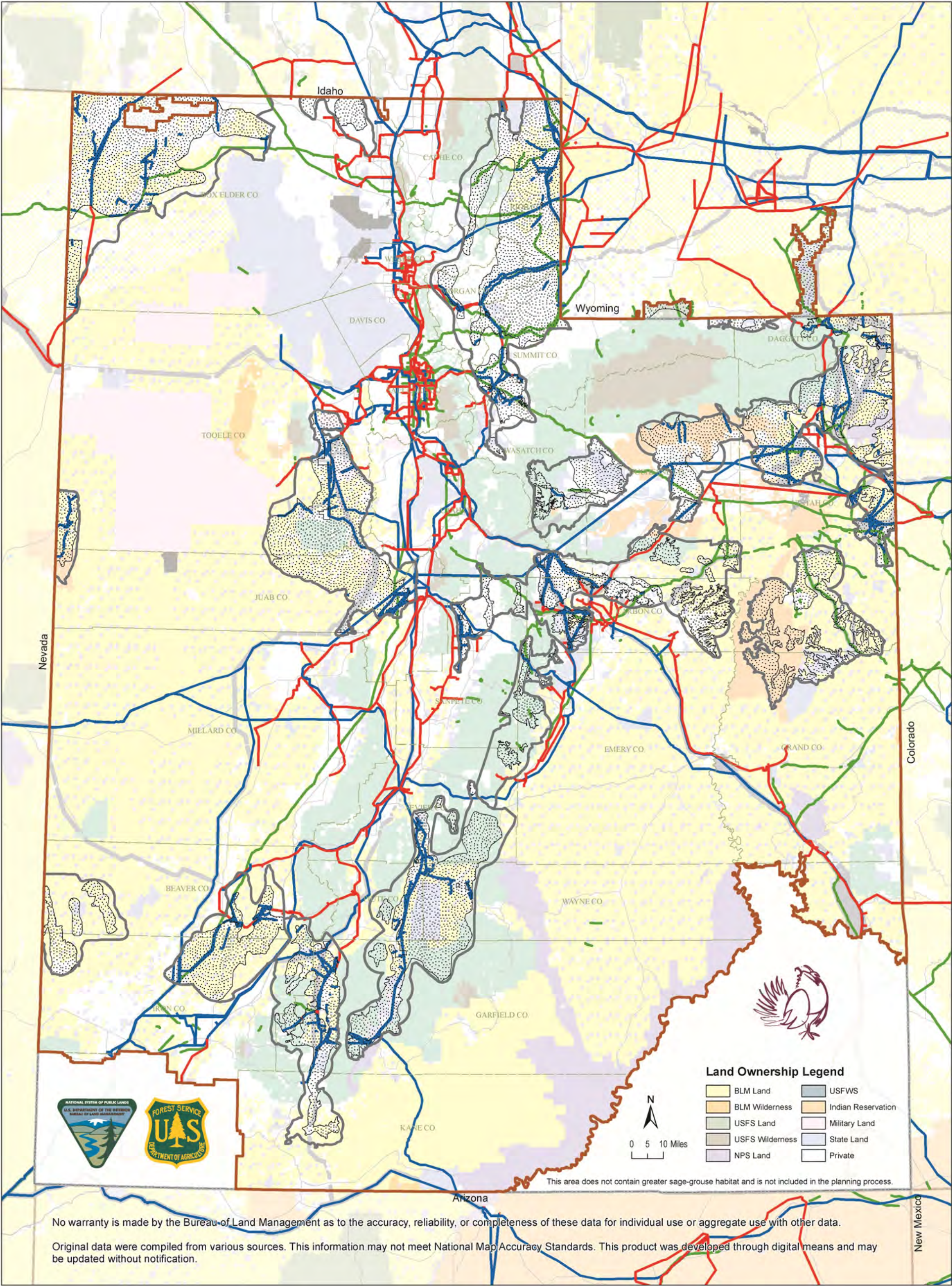
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Developed Recreation Sites

- BLM Recreation Site
- Forest Service Recreation Site

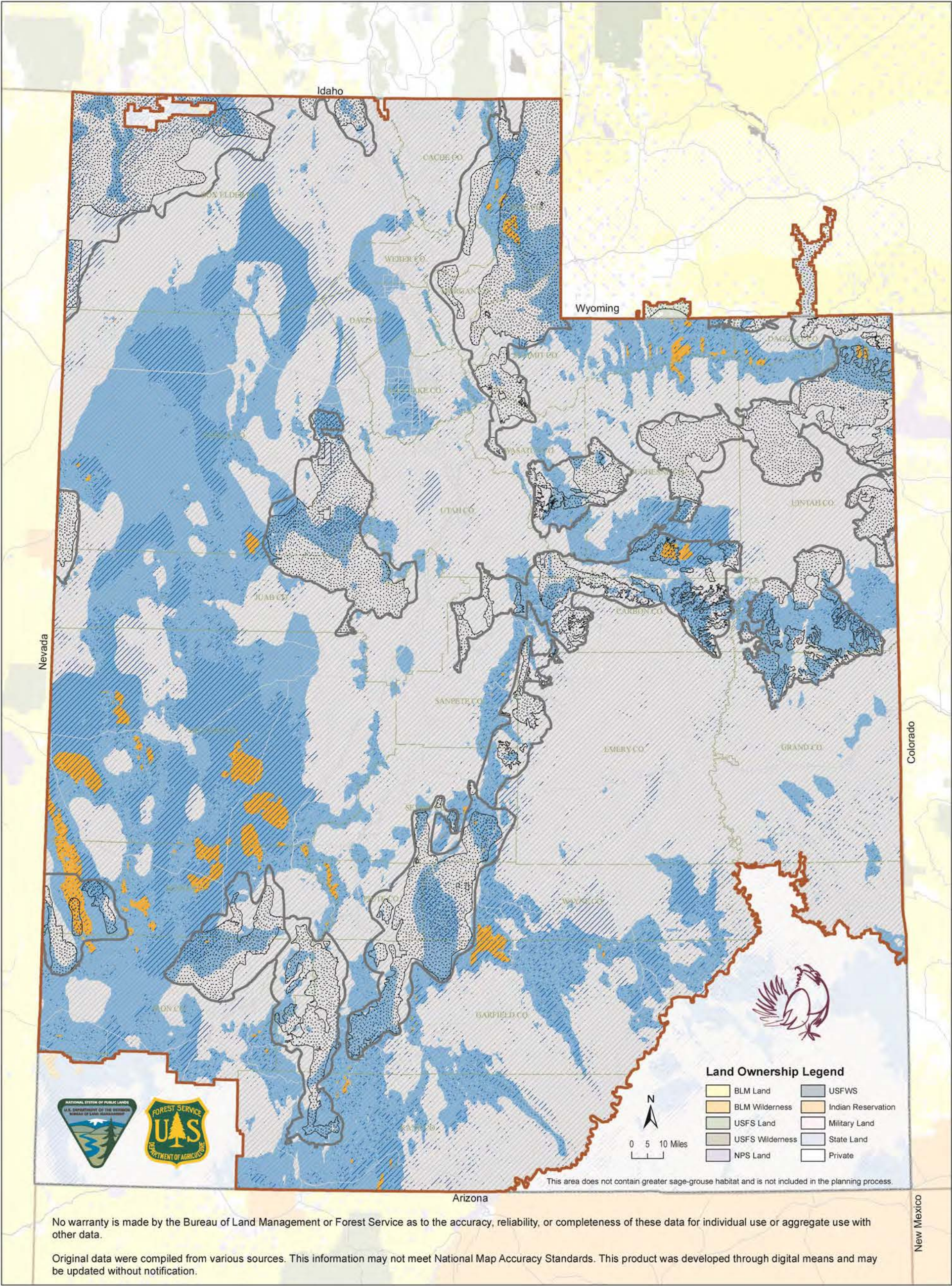
Transmission Lines and Pipelines



- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Population Areas
 - Occupied Habitat

- Transmission Lines and Pipelines**
- Voltage Greater than 115kv
 - Voltage Less than 115kv
 - Designated Corridors
 - Pipelines

Wind Occurrence Potential



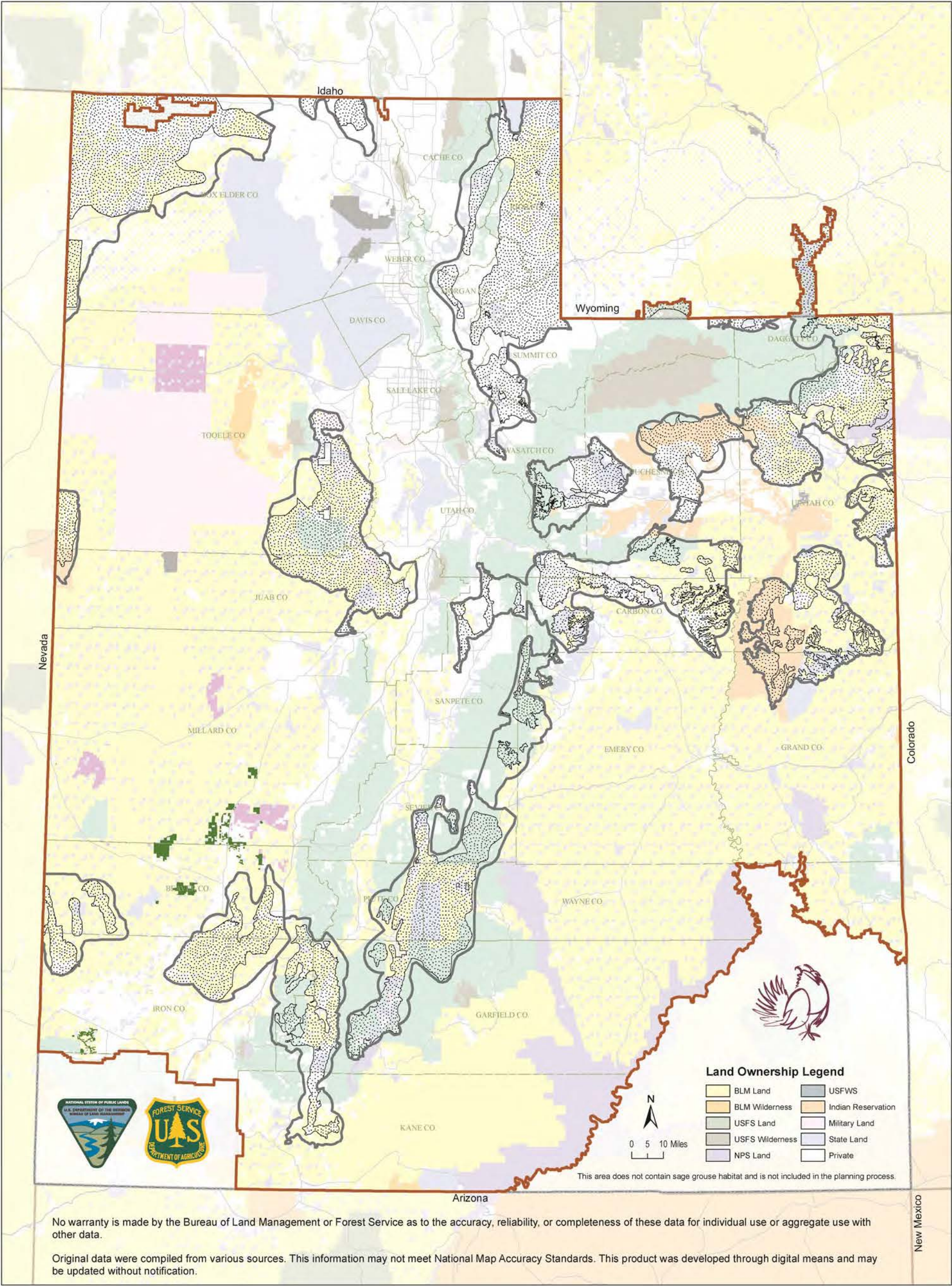
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Wind Speeds - Average Annual Wind Speed (50- and 100-Meters above ground level in meters per second)

Wind Speed Range (50 Meters)	Wind Speed Range (100 Meters)
<= 5.5 (50 Meters)	<= 5.5 (100 Meters)
5.5 - 7.0 (50 Meters)	5.5 - 7.0 (100 Meters)
7.0 - 8.5 (50 Meters)	7.0 - 8.5 (100 Meters)

Wind Energy Rights-of-Way



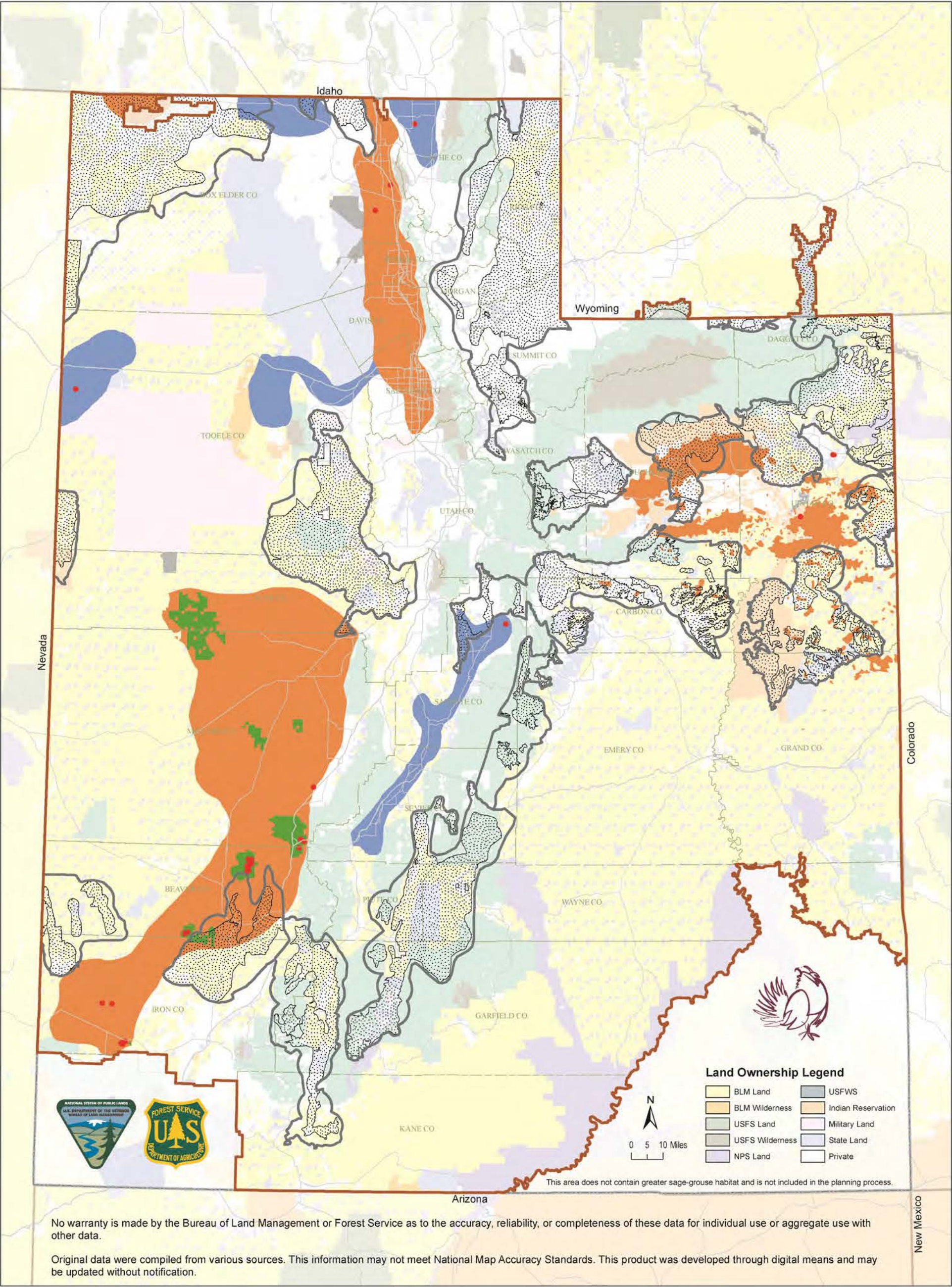
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Wind Energy Rights-of-Way

- Authorized Rights-of-Way
- Pending Rights-of-Way

Geothermal Occurrence and Development Potential



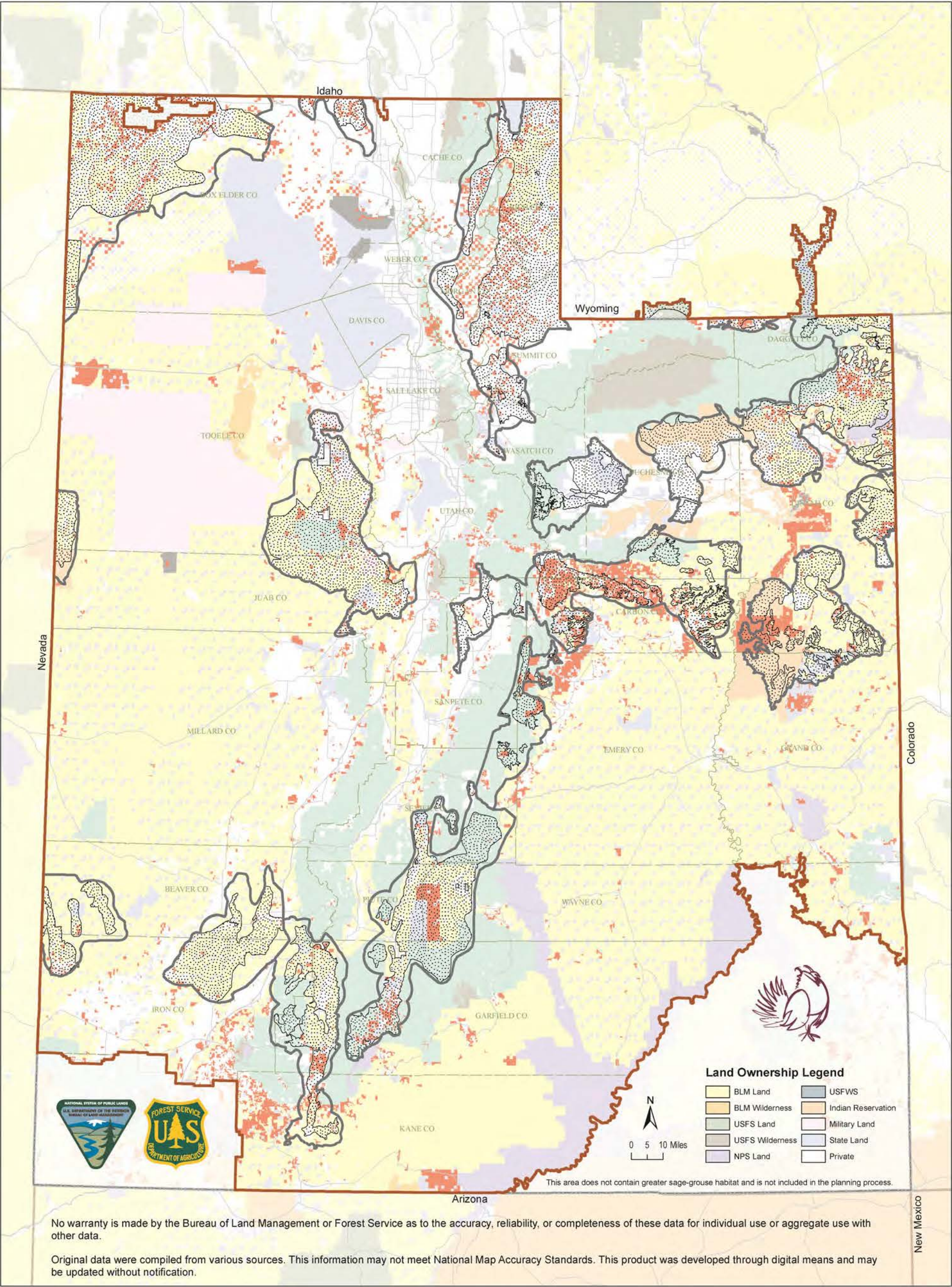
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Geothermal Energy Occurrence and Development Potential

- High Geothermal Energy Development Potential
- Moderate Geothermal Energy Development Potential
- Low Geothermal Energy Development Potential
- Geothermal Wells

Federal Minerals on Split Estate Lands



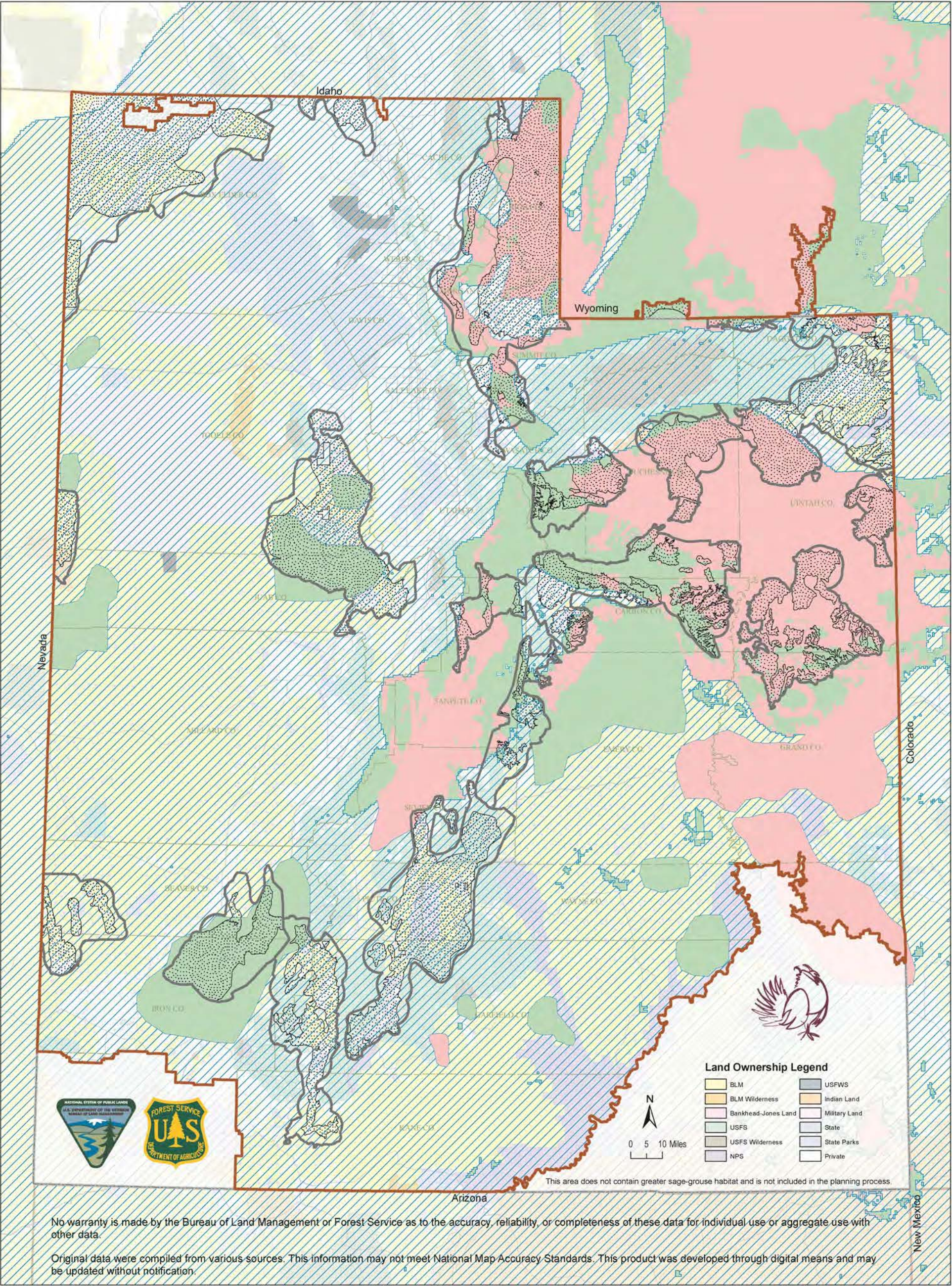
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Federal Minerals

- Federal Minerals on Private, State or Tribal Land

Oil and Gas Occurrence Potential



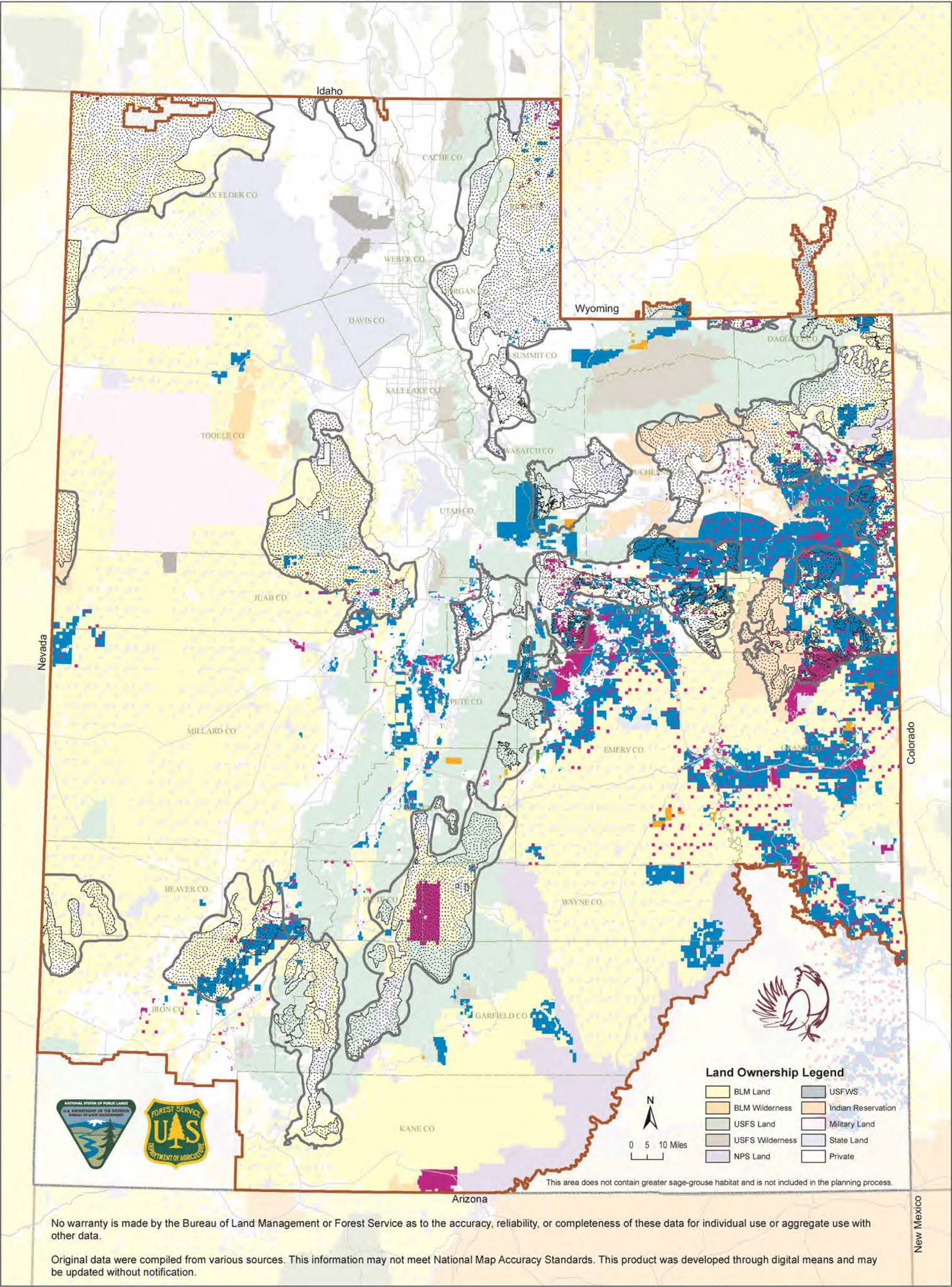
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

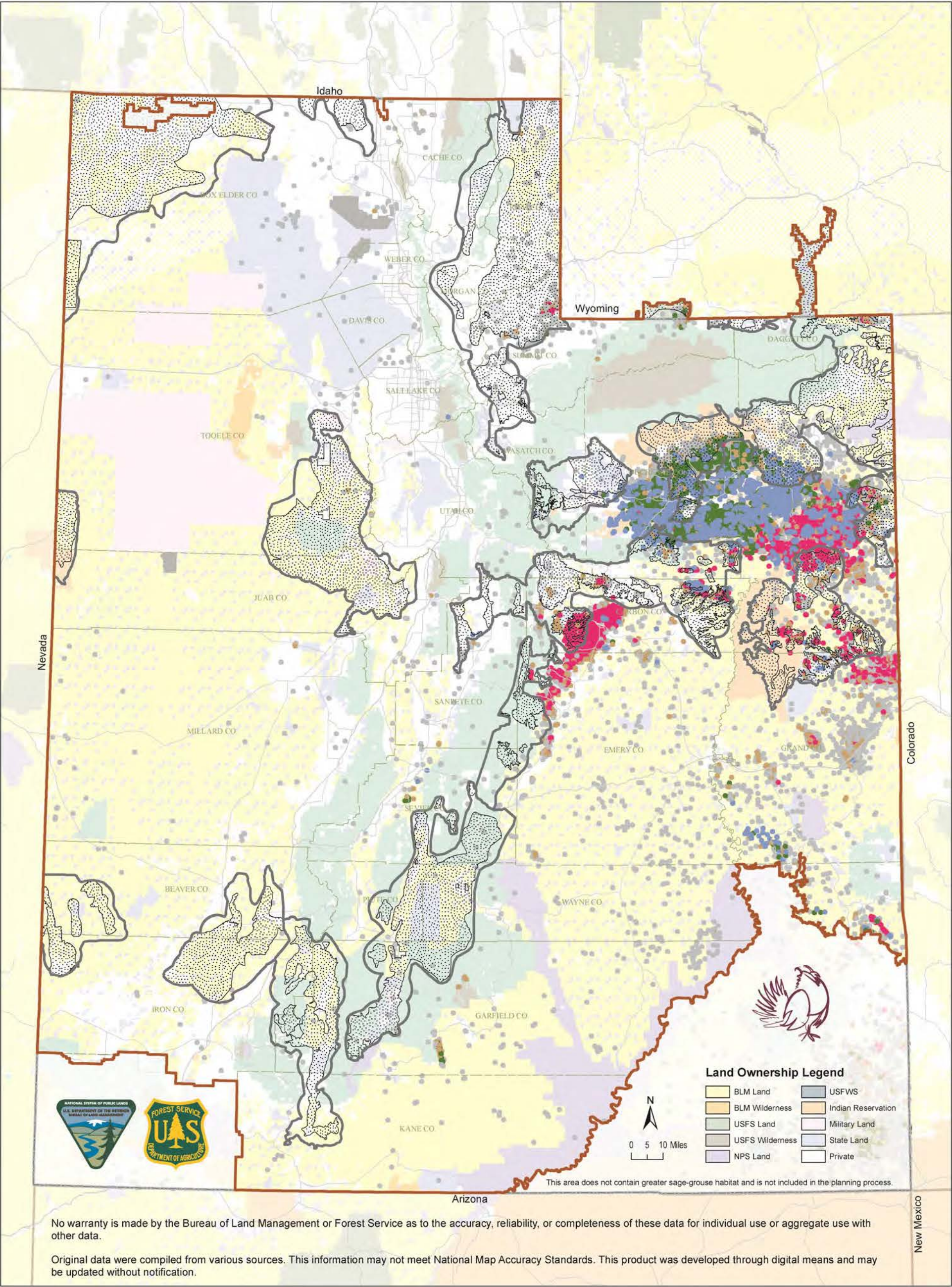
Oil and Gas Resources

- High Potential
- Medium Potential
- Low Potential

Oil & Gas Leases



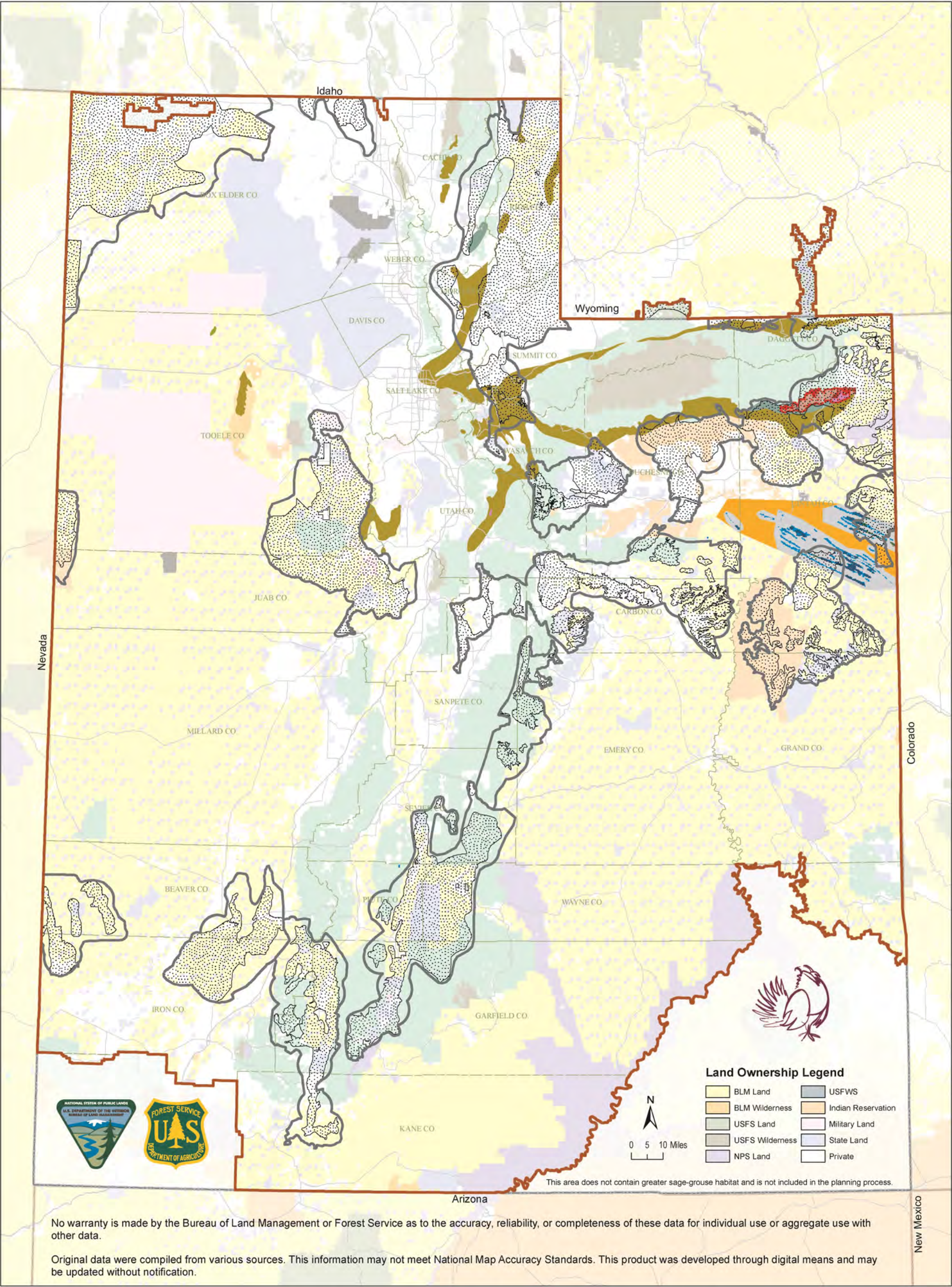
Oil & Gas Wells



- Greater Sage-Grouse Areas**
- Utah Sub-Regional Planning Area
 - Population Areas
 - Occupied Habitat

- Oil & Gas Wells as of April 15, 2015**
- Producing Oil Well
 - Producing Gas Well
 - APD
 - Plugged and Abandoned
 - Other

Gilsonite and Phosphate Occurrence and Development Potential



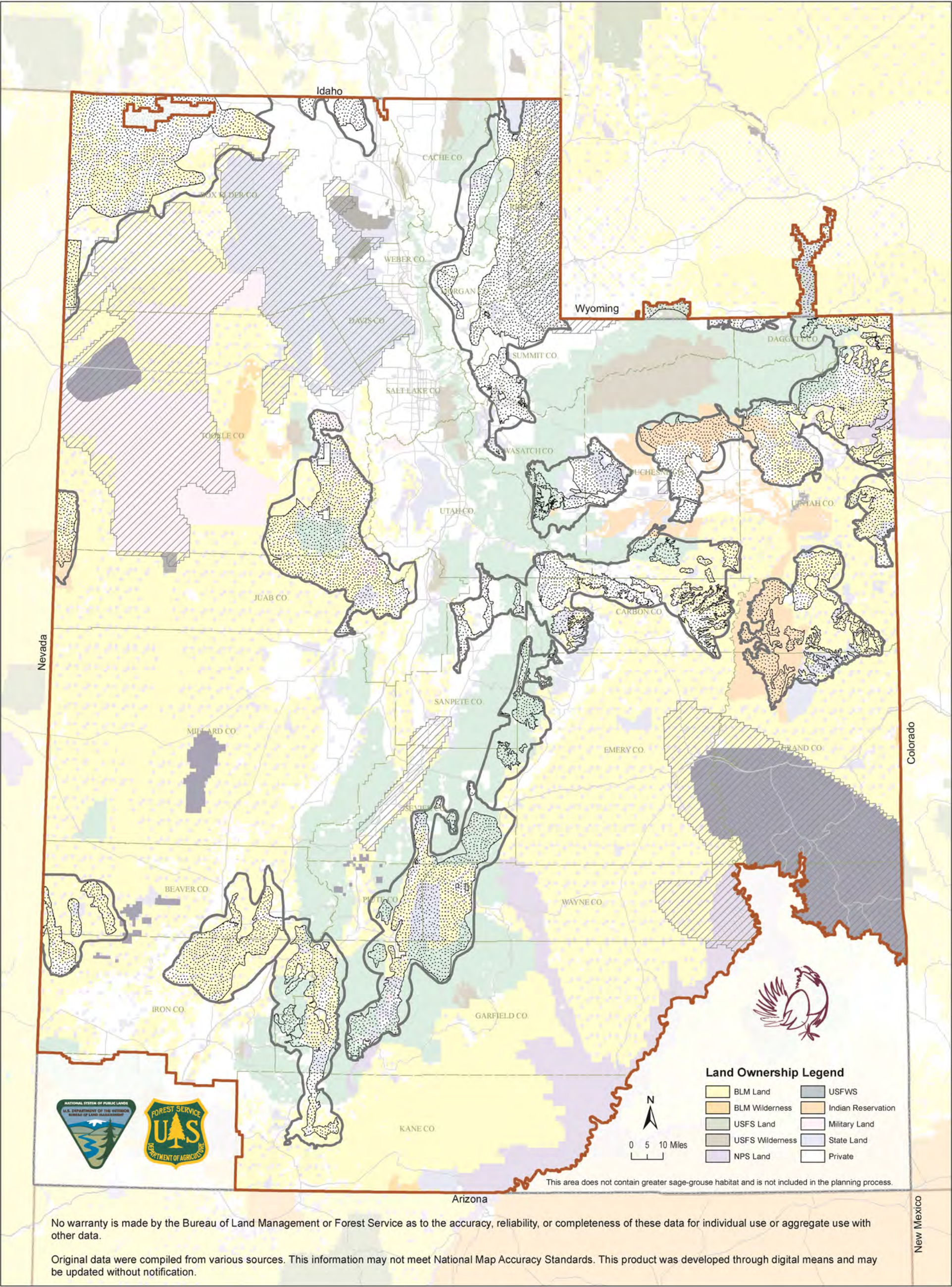
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Gilsonite and Phosphate Occurrence and Development Potential

- | | |
|--|--|
| High Gilsonite Development Potential | High Phosphate Development Potential |
| Moderate Gilsonite Development Potential | Moderate Phosphate Development Potential |
| Low Gilsonite Occurrence Potential | Low Phosphate Development Potential |
| Authorized Gilsonite Leases | Authorized Phosphate Leases |
| Pending Gilsonite Leases | Pending Phosphate Leases |
| | Known Phosphate Leasing Areas |

Sodium and Potash Occurrence Potential



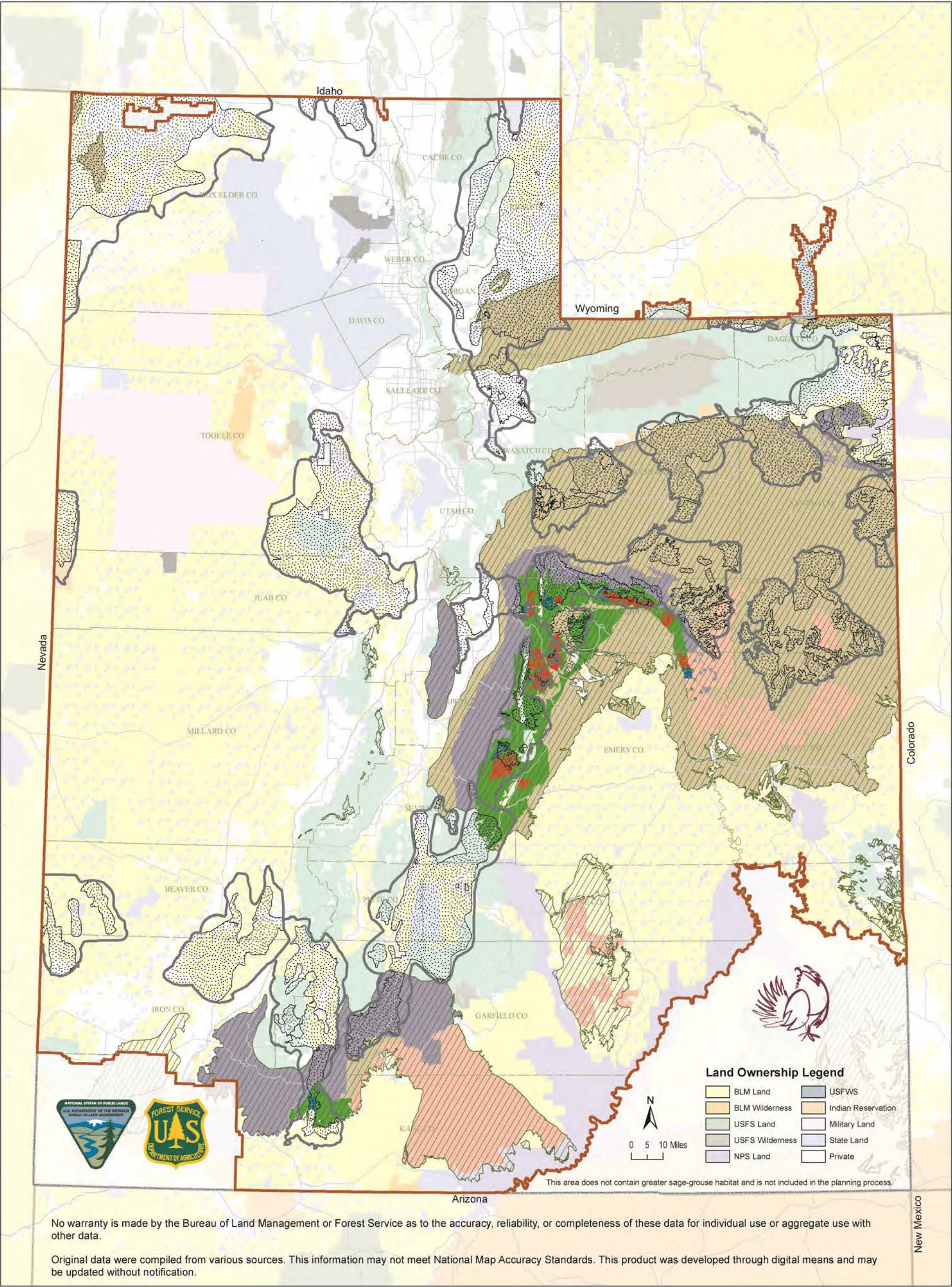
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

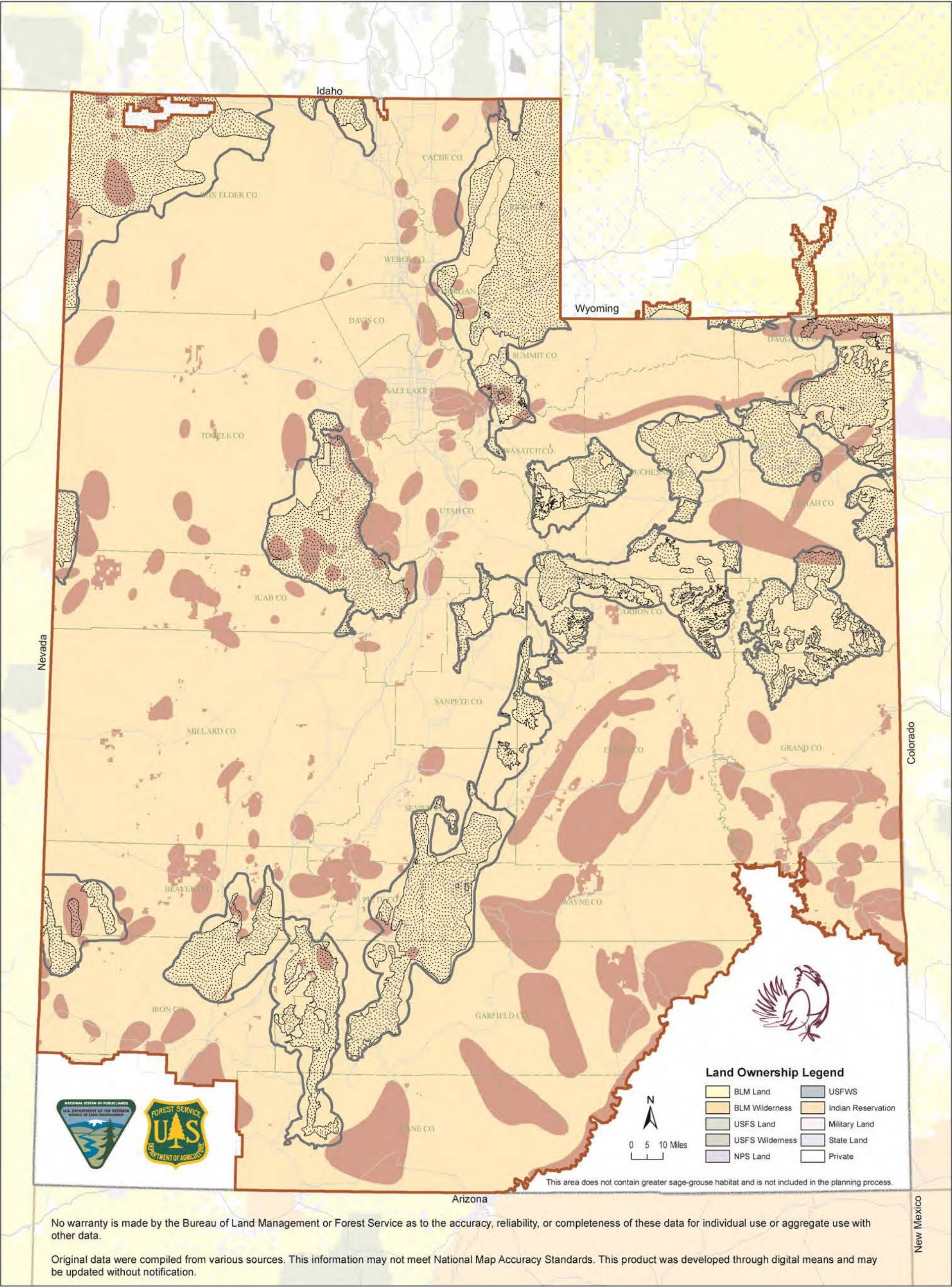
Sodium and Potash Occurrence Potential

- Sodium
- Potash

Coal Occurrence and Development Potential



Locatable Mineral Occurrence Potential



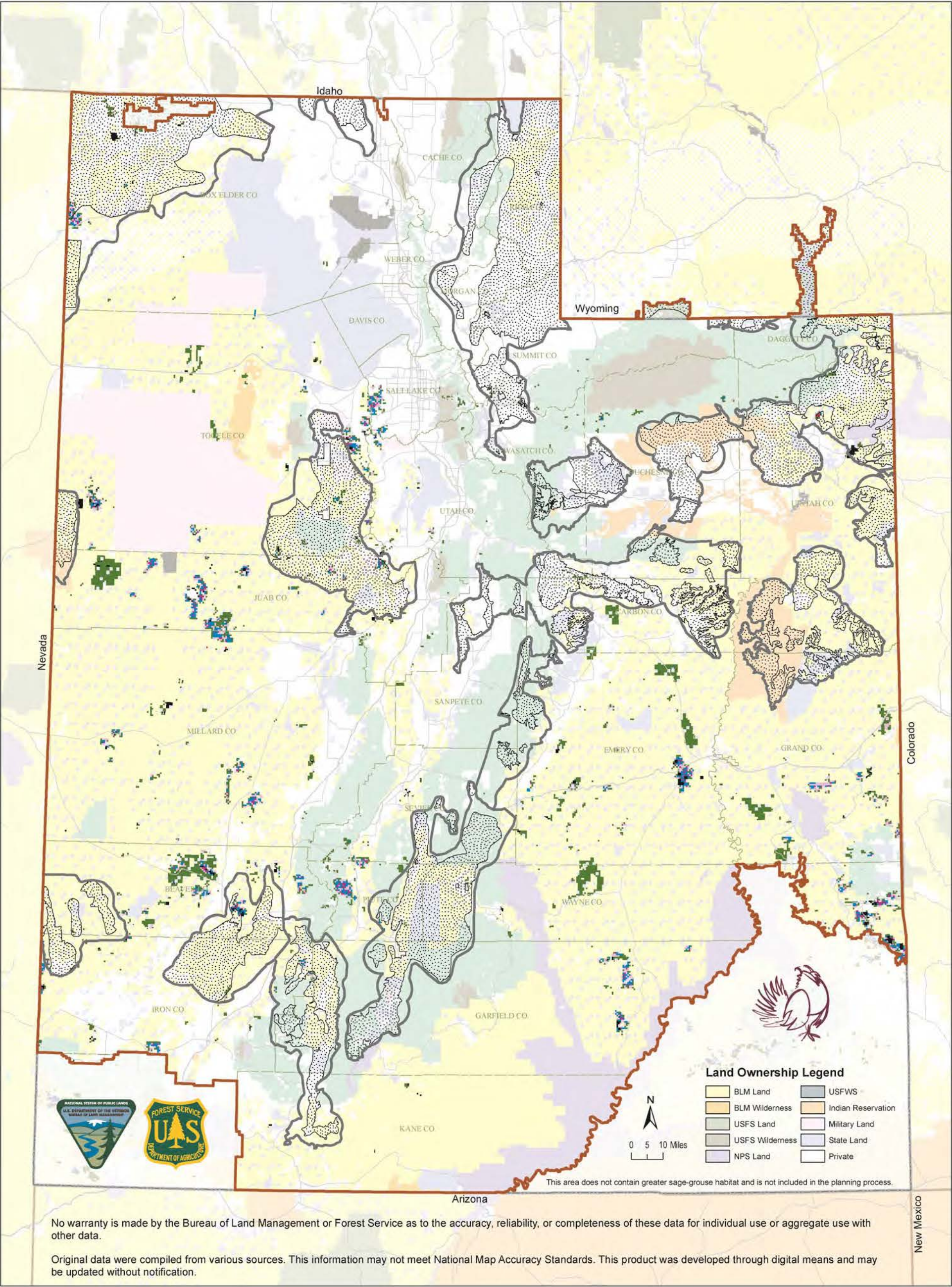
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Locatable Mineral Occurrence Potential

- High Potential
- Moderate Potential

Mining Claim Density



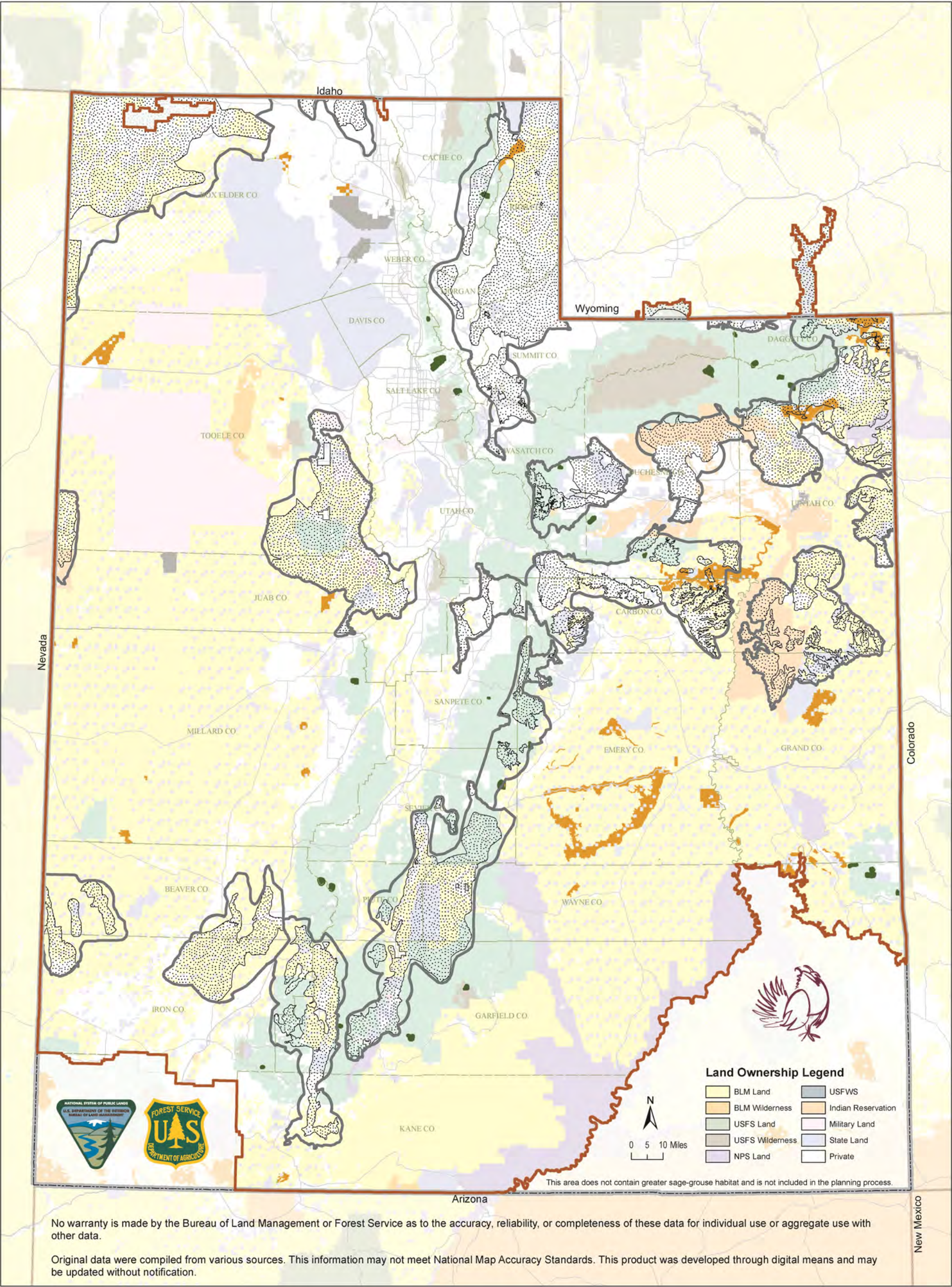
Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Existing Locatable Mineral Claims

- 1 - 3 Claims
- 4 - 7 Claims
- 8 - 12 Claims
- 13 - 26 Claims
- 27 - 50 Claims
- Existing Mine Operations

Designated Areas of Critical Environmental Concern and Research Natural Areas



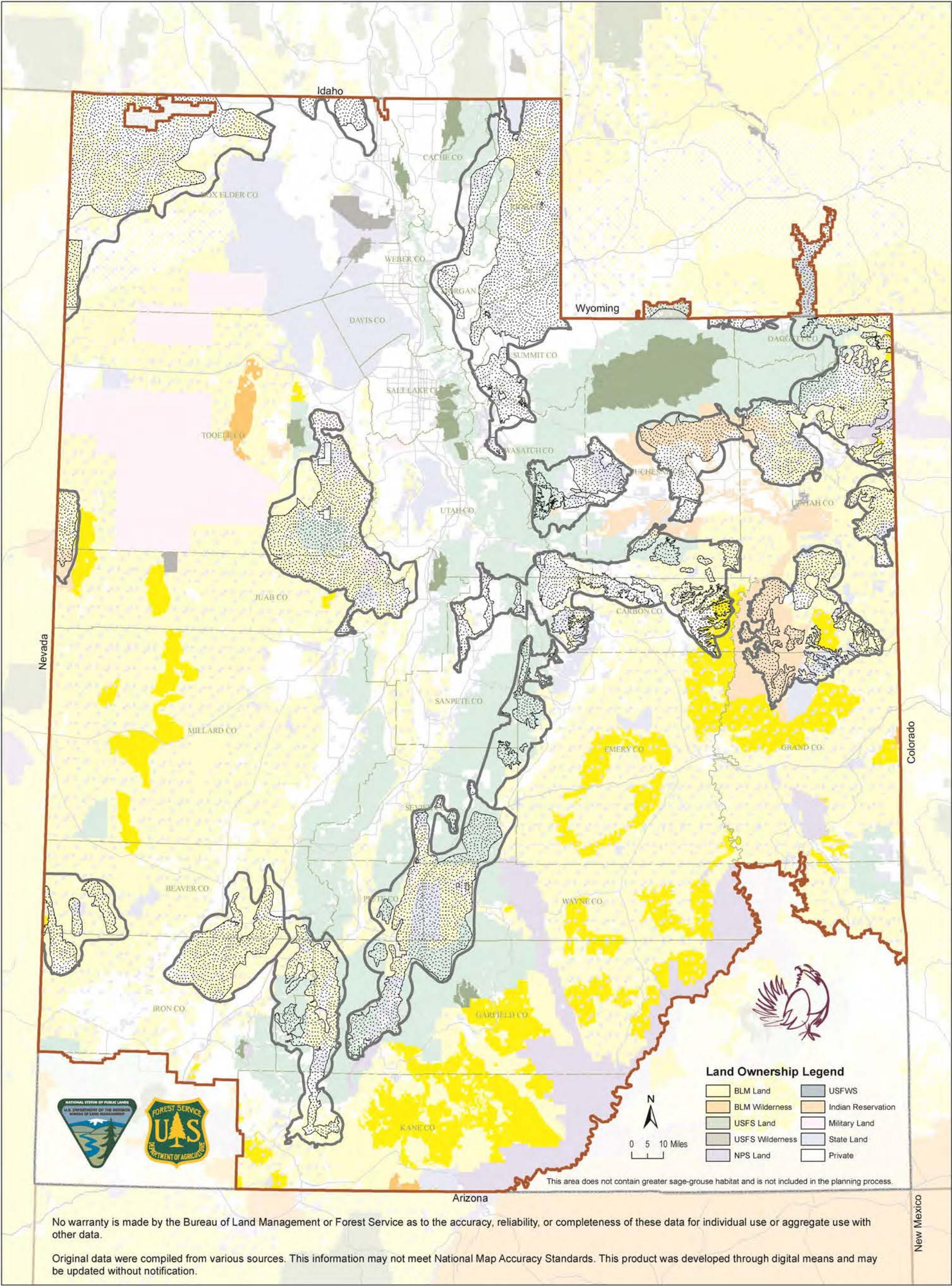
Greater Sage-Grouse Areas

- Utah Sub-regional Planning Area
- Population Areas
- Occupied Habitat

Designated Areas of Critical Environmental Concern and Research Natural Areas

- BLM Areas of Critical Environmental Concern (ACEC)
- Forest Service Research Natural Areas (RNA)

Wilderness and Wilderness Study Areas



Greater Sage-Grouse Areas

- Utah Sub-Regional Planning Area
- Population Areas
- Occupied Habitat

Wilderness and Wilderness Study Areas

- BLM Wilderness
- USFS Wilderness
- Wilderness Study Areas